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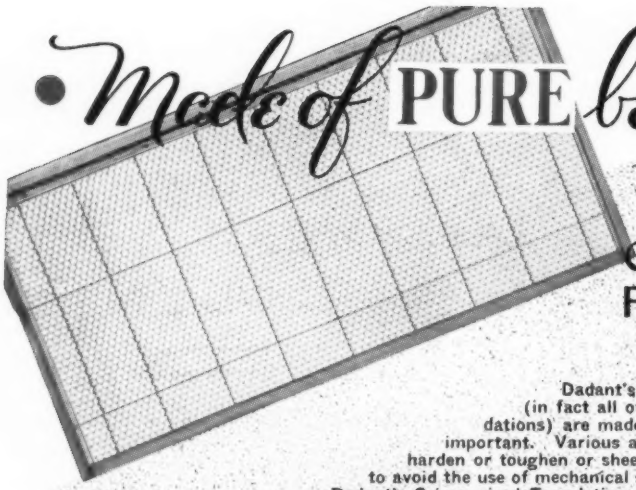
Gleanings In Bee Culture

January, 1954

• Made of PURE beeswax



DADANT'S CRIMP-WIRED FOUNDATION

Dadant's Crimp-wired Foundation (in fact all of Dadant's Bee Comb Foundations) are made of pure beeswax. This is important. Various attempts have been made to harden or toughen or sheer up pure beeswax in order to avoid the use of mechanical supports such as are used in Dadant's Crimp-wired Foundation. However, remember beeswax is a basic raw material which goes into many products and has many uses.

Industry demands purity and refuses known mixtures. Remember, too, that the beeswax in comb honey whether in section or in bulk is actually a food because it is a part of the honey. Therefore, any mixing of other waxes with it is absolutely an adulteration.

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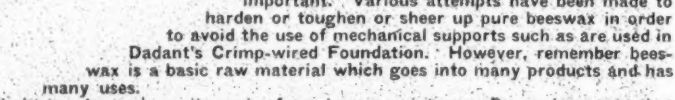

FIG. 1—Pure Beeswax: fleecy flakes, thin bars. FIG. 2—½% carnauba wax; large, clear, bright burrs. FIG. 3—1% carnauba wax; smaller, bright burrs, tiny stars. FIG. 4—2% carnauba wax; large number burrs and stars. FIG. 5—5% carnauba wax; countless tiny brilliant crystals.

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Gleanings in Bee Culture

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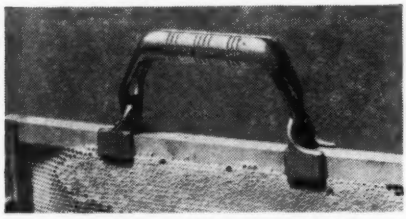

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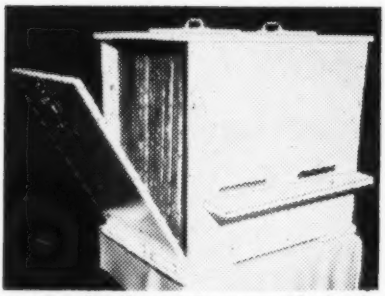

TWO-QUEEN CONVERTIBLE HIVE

Patent pending

This is the Two-queen Convertible Hive. An entirely new Beehive designed and developed for the purpose of eliminating unnecessary hard costly labor and to enable the beekeepers to produce more honey per hive for lower costs.

The Two-queen Convertible Hive is excellent for raising strong colonies with the two-queen system before the big honey flow. The Two-queen Convertible Hive will ensure the beekeeper of having 20 frames of brood in good time before converting the hive to a one-queen hive.

The Two-queen Convertible is a 20 standard frame hive with a partition dividing the two queens, leaving each queen 10 standard brood frames. When the hives are sufficiently advanced and supering is necessary, then the best queen is selected. The second queen is removed from her brood chamber. The mechanical opening in the partition is opened a few days after the second queen is removed. The two small top covers are then removed and the queen excluder placed over them, or two small queen excluders, one for each openng, a standard super or supers are used as required with a standard beehive cover.

Two two-pound packages with queens are recommended to start the Two-queen Convertible Hive in the spring. The queens in the cages are placed in the top openings right on the end of frames. The bee cages are then placed one on each opening with opening of the bee cage downwards enabling the bees in the cage to escape down into the brood chamber where the queen is. When the cages are empty they are removed and both lids are put in place.

Both hives can be inspected by opening the side doors at all times. When the beekeeper inspects the brood chamber the bees will be able to escape into the super space at the time the supers are being used. This will enable the beekeeper to examine or inspect the bee hive which will not be overcrowded. Because supers do not have to be removed when the brood chamber is inspected this will not disturb the bees and will insure a better honey crop the day inspection takes place, besides insuring quieter bees.

The Two-queen Convertible Hive is excellent for beekeepers who find it hard to lift supers, especially lady beekeepers. The Two-queen Convertible Hive is a real labor reducer thus eliminating the cost of producing both liquid and comb honey. The entrance is six inches from the bottom of the hive preventing the cold air and wind in spring from harming brood in the brood chamber. The two side doors can be opened in the summer on hot days to ventilate the hive as required.

Price for the Two-queen Convertible Hive, without frames, $18.00, delivery charges extra.

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Monthly HONEY Report

United States Market

The following figures represent an expression of current prices from beekeepers and honey packers over the country. They are based on several reports from each state averaged with the reports in the region. Where insufficient information is returned, prices have been omitted from the chart. Where three figures appear on the chart the first figure represents the low, the middle figure represents the average, and the third figure the high price in cents per pound. Where only two figures are used the low and high are shown.

	North & South Atlantic	South Central	North Central	Midwest	West
Bulk Honey:					
Table Grade	10¾-12-14c	12 16c	10½ 12c	11½-12-13c	11½-12-13c
Industrial Grade	9½-10½-11	10	9½ 10½	10-11-12	9-10-11
Price to Grocers:					
5 lb. jar - can	13-21-29	20-22-25	17 18½	17-18-19	18-19-20
2 lb. jar - 12's	20-25-30	21-22-25	20-21-23	23 24	21-23-25
1 lb. jar - 24's	23-27-30	22-25-29	22½ 24	22½-23½-25	22-24-25
Comb Honey: Cs. of 24 Sec.	$7.40-8.50-10		$7.90	$7.20-8-8.50	$7.75
Retail Price:					
60 lb. can	15-17-20	15-17-20		14-15-17	15-16-20
5 lb. jar	20-26-40	24-25-30	22-24-25	19-22½-25	20-23-25
2 lb. jar	22-32-40	30-33-34		27-30-32	29-30-32½
1 lb. jar	25-35-45	33-35-37	32-33-35	29-32-35	30-33-35
Honey Sales:	Fair	Fair	Fair	Fair	Fair
Prospects for 1954	Good	Fair	Poor	Good	Good

A few comments were as follows:

"Late Fall rains may have saved white dutch clover here."—S. E. Minn.

"Fair seedings hurt by drought."—Iowa

"Best November sales in several years. Colonies going into winter in fine shape after a mild fall."—Nebraska

"Only very little honey on hand in small containers."—New York

"Practically no honey left in beekeepers hands."—Florida

"No fall flow due to drought."—Arkansas

Canadian Market

(Unless otherwise specified, all quotations are for cases of No. 1 White.)

HALIFAX: Mkt. steady.
Ont., past., paper,
24/2's $12.50
24/1's 6.50

SAINT JOHN: Mkt. steady.
Ont., past., glass,
24/16-oz. ..... $ 7.25
paper,
24/1's 6.10
24/2's 11.10
metal, 12/4's 11.50

MONTREAL: Mkt. steady.
Que., White, metal,
24/2's $10.50-11.00
12/4's 10.25-10.50
glass,
24/8-oz. 4.25- 4.50
24/16-oz. 6.25- 6.75
Dark metal,
24/2's 6.50- 6.75

OTTAWA: Mkt. steady.
Ont., past., metal,
24/2's $10.75-11.55
12/4's 9.90-10.65
paper, 24/1's 5.51- 5.80

TORONTO: Mkt. firm.
Ont., past.,
paper, 24/2's $ 9.75-10.25
metal, 24/2's 10.50-11.00
glass, 24/16-oz. 5.25- 5.50
unpast.,
metal, 24/2's 10.50-11.50
glass, 24/16-oz. 6.25- 6.50

WINNIPEG: Mkt. steady.
Man., metal,
24/2's ..... $ 9.60
12/4's 9.05
past., paper,
48/1's 11.35
24/2's 10.50

REGINA: Mkt. steady.
Sask., past., paper,
48/1's $10.80-10.95
metal,
24/2's 10.60-10.80
12/4's 10.30-10.50
6/8's 10.20-10.40
Ont., unpast., metal,
12/4's 9.50

SASKATOON: Mkt. steady.
Sask., metal,
24/2's $10.15-10.25
12/4's 9.50- 9.75
past., paper,
48/1's 11.40-11.50
metal,
24/2's 11.20-11.30
12/4's 10.85-11.00

EDMONTON: Mkt. steady.
Alta., metal,
12/4's ..... $ 8.53- 9.15
6/8's 8.50
past., paper,
48/1's 10.30-10.43
24/2's 9.52- 9.73
metal,
12/4's 9.47- 6.62
B. C., liquid, glass,
12/1's 4.25

CALGARY: Mkt. steady.
Alta., metal,
12/4's ..... $ 8.75- 9.00
6/8's 8.40- 8.50
past., paper,
48/1's 10.50-11.00
24/2's 9.45
metal,
12/4's 9.15- 9.48

VANCOUVER: Mkt. steady.
Alta., past., carton,
24/1's ..... $ 5.65
24/2's 10.65
metal,
24/2's 11.20
12/4's 10.70
liquid, past., glass,
24/12-oz. 6.05

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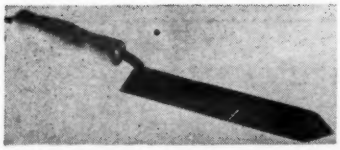

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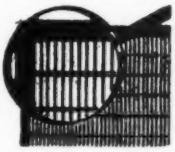

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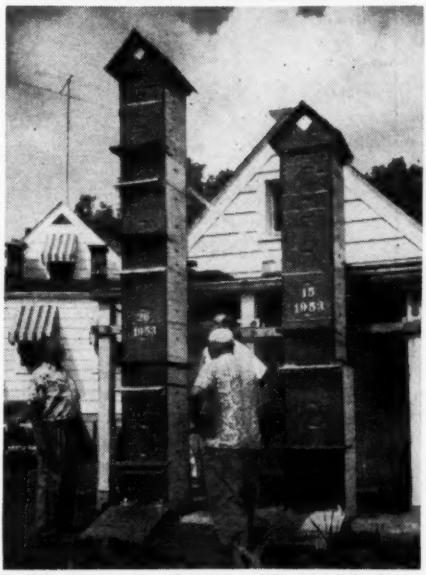

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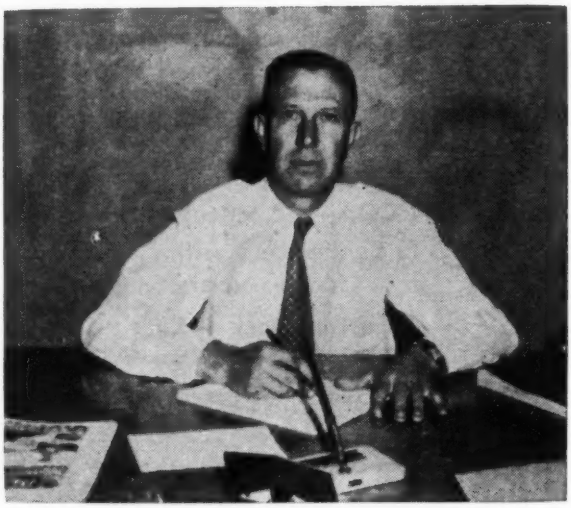

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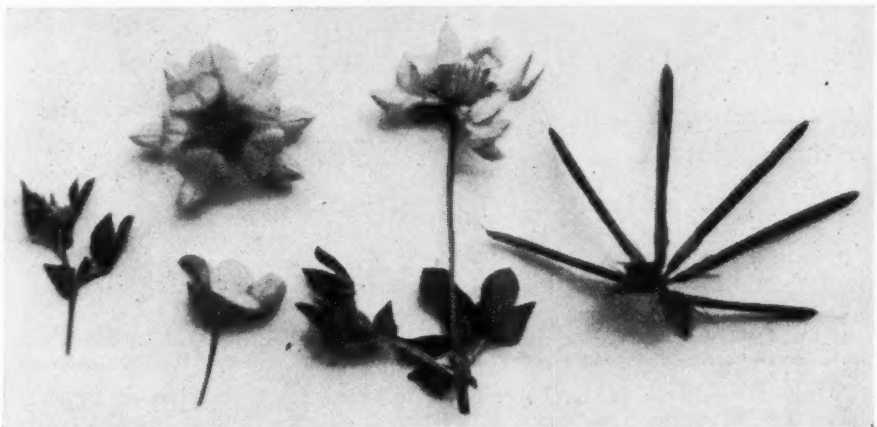
What About Birdsfoot Trefoil?

Is It a Good Honey Plant?

By Walter Barth, Assistant Editor



Birdsfoot trefoil, showing foliage, flowers, and seed pod. The resemblence of the six pods on the right to a "bird's foot" is responsible for the popular name of this legume.

ALTHOUGH COMMONLY called birdsfoot trefoil (**Lotus corniculatus**), the plant is also known as bastard indigo, birdsfoot clover, clover, and birdsfoot. This member of the Leguminosae or pea family came originally from Europe. Today, wild specimens can be found growing along roadsides and in waste lands of many states.

This promising legume is an erect, perennial, many stemmed herb. The leaves are alternate with five leaflets to a leaf. Thus the name of trefoil is misleading since it indicates three leaves or leaflets.

The sugar concentration of the nectar ranges from 36.6 to 45.0 with an average of 48.0 per cent, according to a recent investigation at the Cornell University Agricultural Experiment Station. The plant is a good source of pollen but to date has proved to be only of minor nectar value, the report reveals.

Many beekeepers find that while their bees will always be working on birdsfoot trefoil, no great surplus of honey is ever harvested. Exceptions to this have been reported by Charles Mraz of Vermont, Carl M. Teasley of Tennessee, and also from a few beekeepers in eastern and northern New York.

A good summary of the available information on birdsfoot trefoil appeared in the 1951 edition of "Cornell Recommends for Field Crops", and it is presented here to give a complete picture of the subject:

"Birdsfoot trefoil is the best long-lived legume for soils that are not well drained. It is of greatest use where conditions are unsatisfactory for a long-lived productive stand of alfalfa or Ladino and to replace red clover for meadows to be left down more than two harvest years.

"Empire is the best hay-pasture variety. It persists well under grazing and is a productive hay legume which blooms about 10 days later than most European types. Empire is a proved broadleaf variety for New York conditions where alfalfa does not do well, where red clover is too short-lived, and where summer conditions are too droughty for Ladino and white clover.

"The special merit of Empire birdsfoot trefoil is (1) its persistence (long life) under ordinary grazing management; (2) its late maturity or bloom

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Beekeepers examining a good stand of birdsfoot trefoil in eastern New York State.

which makes it possible to harvest high-quality hay about ten days later than it is possible with the earlier blooming European broadleaf types and red clover. **Certified seed is first choice.**

"European Broadleaf types are recommended primarily for hay as a replacement for red clover where persistence of a legume stand is desired. Red clover provides an appreciable amount of legume in a meadow for only one harvest year as contrasted to birdsfoot trefoil which persists for four or more years. European types are more erect in growth than Empire, are quicker to establish as seedlings, make more rapid growth, and bloom about ten days earlier. Total hay yields have been about equal to those of Empire. European types tend to be quite variable within and between seed lots. Because of its more erect growth habit, European birdsfoot trefoil should not persist so well as Empire under close grazing.

"Other Sources of seed grown in New York State or elsewhere may be any of the several types of birdsfoot trefoil. To establish type, origin of each lot must be known. Broadleaf birdsfoot trefoil (Goodfellow Strain) is similar to Empire though more variable and perhaps somewhat less productive.

"Narrowleaf Birdsfoot trefoil is not so productive for pastures or hay as Empire and other broadleaf types."

Manitoba Meeting

APPROXIMATELY 75 beekeepers attended the 47th annual convention of the Manitoba Beekeepers' Association, November 19 and 20, at the Marlborough Hotel, Winnipeg, Manitoba. President F. A. Morris, of Portage la Praire, presided.

Mr. S. J. Lyle, Oakville, Chairman of the Honey Marketing Plan Committee, reported on the activities of the Canadian Beekeepers' Council which is scheduled to meet in Winnipeg about the third week of July. Eighty per cent of the Manitoba beekeepers favored the establishment of a honey marketing plan, and the Council hopes to put the plan in operation before the 1954 honey crop.

Some of the other speakers during the sessions included D. R. Robertson, Provincial Apiarist; Basil Furgala and A. V. Mitchener, University of Manitoba; C. A. Jamieson, Dominion Apiarist, Ottawa; Stanley Smith, Oakbank, and N. C. Jensen, queen breeder from Macon, Mississippi.

She's a Honey of a Beekeeper

By Pat Perkinson, Richmond, Virginia

William J. Haug gets a helping hand from his 12-year old daughter, Carol, at their "Honey Farm" near Ashland. Carol, who raises and cares for her own bees, is the youngest member of the Richmond Beekeepers' Association.

From the Richmond Times Dispatch

IF THE Richmond Beekeepers' Association were to have elected a Honey Princess to reign over National Honey Week—October 25 through 31—they could have found a honey of a princess on their own roster.

Twelve-year old Carol Haug, an attractive little brunette who lives on Route 1 near Ashland, is the youngest member, in fact the only child in the local organization. She joined the Association two years ago after visiting several times with her father, who was secretary at the time.

Carol maintains her own hives at the William J. Haugs' "Honey Farm," where she also assists her father in the chores necessary to harvesting honey for sale in local stores.

The bees practically take care of themselves most of the time, according to Carol, but she has to remove the frames when they are full of honey, cut the caps or tops off the comb, extract the honey by centrifugal force in an extractor, strain it, and put it in jars. Then she "gives the frames back to the bees," who obligingly get to work and fill them up again.

Although she had been helping her father with his bees for some time, Carol didn't get really interested in the subject until she joined the Girl Scouts in Ashland and decided to work on a proficiency badge in beekeeping. She earned the badge and then kept right on with her hobby.

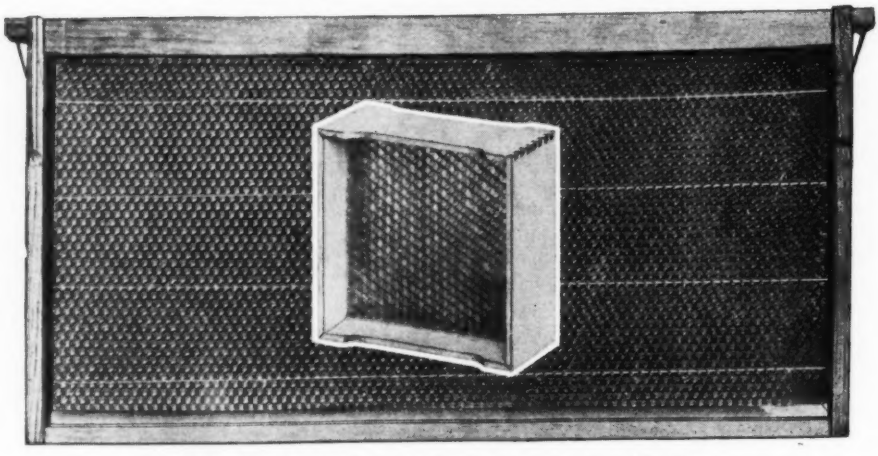
The Haugs' 10-acre farm is a perfect location for the bees, Carol finds. They have plenty of room to fly around in search of honey and plenty of wild flowers and flowering trees in which to find it. Holly and tulip trees furnished their supply earlier in the year, according to Carol, and now the bees are depending on goldenrod and the tiny little white asters that grow wild everywhere on the farm.

Being a beekeeper has its hazzards as well as its rewards, however.

(Continued on page 59)

Are We to Have Plastic Honeycombs?

By Geo. H. Latham, Wilmington, Delaware



Will plastics replace beeswax in comb foundation?

SINCE THE BEGINNING of history, honeycomb has been a natural product of the bees, a marvelous structure admirably embodying the principles of engineering design to afford the greatest practical structural strength with the least expenditure of wax. Throughout the thousands of years honey bees have been in existence, until the middle of the 19th century, they made the comb in its entirety, arranging it to suit themselves in more or less curved combs within some hollow space they had chosen for their nest.

But with the invention of the movable-frame hive about a hundred years ago, came a need for a way to make the bees build their combs straight in the frames so they could be handled. The answer was comb foundation—a thin sheet of wax with the outlines of the cells of honeycomb pressed into it. This, properly fixed into the frame, guided the bees in building their comb as desired by the beekeeper.

The first crude foundation was invented in 1857 by a German named Mehring. It was improved from time to time until in 1875 that ingenious beekeeper, A. I. Root, with one of his friends, a Mr. Washburn, perfected it to a point where it was nearly equal to today's product.

About the same time J. E. Van Deusen made foundation having fine wires embedded in it for support. His foundation had flat instead of hexagonal-pyramidal cell bases, which the bees were supposed to re-construct. However, they did not take kindly to the idea, and Van Deusen's foundation disappeared from the market.

All these kinds of foundation were made of pure beeswax. An objection to all of them was that a comb built from them, like natural honeycomb built without foundation, was not strong enough to stand the strain of handling such as in extracting with a centrifuge. The occasional high temperatures to which the comb was subjected softened it so it would sag, distorting the cells.

To prevent these mishaps, various schemes were devised to reinforce the comb. Sheets of paper, cloth, wire cloth, cellophane, and even tinfoil were embedded in the foundation, and while some nice combs were built on such foundation, the bees evidently objected to these foreign materials in their combs and showed it by a tendency to tear the wax away down to the reinforcement, leaving combs with holes and other irregularities in them. Foundation with thin wood veneer embedded in it suffered the same fate.

OF ALL the methods of supporting honeycomb which were tried, wiring was the only one that succeeded. Two methods of wiring are in use. In one, developed by the Dadants, "kinked" wires are embedded vertically in the foundation during its manufacture, the bent ends protruding at the top so they can be used to support the foundation when it is attached to the top-bar of the frame. In the other method, fine thin wire is strung horizontally in the frame, the foundation is put in, and the wire embedded in it by mechanical pressure (usually a simple hand tool called a "wire embedder") or by heating the wire electrically, causing it to sink into the wax.

Under equal conditions bees draw out each kind of foundation to good flat combs, without the tendency to gnaw the wax at the wires. Some beekeepers prefer to support the vertically wired foundation by horizontal wiring. Where this is done the bees do tend to gnaw holes in it where the wires cross.

Foundation made with pure beeswax still tends to sag and to break under unusual strain. To reinforce it better than wires alone can do, the Roots have developed a "three-ply" foundation which consists of a "sandwich" of a sheet of relatively tough, higher-melting beeswax/vegetable wax mixture pressed between two sheets of pure beeswax. From either this type of reinforced foundation or the Dadant type the bees make beautiful combs which have proved to be generally satisfactory.

Now, however, a new kind of foundation, and indeed, an apparently new kind of honeycomb is being reported in the scientific journals. Our age might be called "the age of plastics", and the new foundation is based upon plastics.

Science News Letter for May 30th, 1953, shows on its front sheet, and briefly describes on page 338, honeycomb built on a "specially treated" plastic base. Perhaps the comb is made entirely of the plastic (the article does not make this clear). It is said to be the first non-wax comb ever filled with honey by the bees. It is claimed that the new comb is not attacked by the wax moth and that it saves bees the time and honey that would be required to make the combs from beeswax. The kind of plastic used and how it is specially treated, are not disclosed.

W. Lacis in "Kunststoffe" **43**, 109 - 10 (1953) is more specific. He describes injection-molded polystyrene comb foundation which is said to be replacing beeswax combs in Germany, where beeswax is scarce. After the honey is harvested, the plastic combs are washed and re-used. They are sterile, odorless, and tasteless, and do not carry bee diseases. Apparently the plastic is molded into foundation which looks like the usual product made from beeswax, except perhaps in color. (Polystyrene is substantially colorless and transparent).

Since polystyrene melts at a much higher temperature than beeswax does, and is also much harder and tougher, I do not understand how bees can work on it and draw it out into comb. From what I know about bees and plastics, I do not believe they could or would make the comb entirely from plastics; from habit alone they would, I believe, add beeswax to the plastic as they build the cells. Certainly they would cap the cells, after filling them with honey, with beeswax.

If bees can and will make comb from plastic foundation, wiring and other reinforcement, aside from the frame itself, will almost certainly be unnecessary. One can envision many advantages of combs based on plastics —and some disadvantages. How would the comb affect the taste and odor of honey stored in it? Would uncapping for extracting honey be more difficult, and could the cappings be sold as wax?

It seems a safe assumption that plastic foundation would have no place in comb honey production. Indeed, if plastic honey comb should really succeed, it would probably do a lot of damage to the sale of comb honey (even though not used in it) because the uninformed public would again begin to believe the stories about artificial honey and honeycomb which have been pretty largely dispelled since their inception in the latter part of the 19th century.

At any rate, the use of plastics in foundation and honeycomb, as well as in other beekeeping applications, is an interesting idea which will bear watching and experimentation.

Fundamentals of Beekeeping

By B. Elwood Montgomery, Purdue University, Lafayette, Indiana

Learning to distinguish the different members of a honey bee colony is one of the first steps of the beginner.

THE BEGINNER in beekeeping should secure his first colonies in the spring or early summer. By making a start at this season he will have an opportunity to observe the bees during the active season and secure his first lessons in practical beekeeping at the time when the bees are at their best. Furthermore, if the season is not too unfavorable the bees secured early in the spring will store enough honey for their own needs and provide some surplus for the owner.

The beginner should have at least two colonies and, certainly, not more than five. The number may be increased from year to year as the operator acquires experience and skill, using the profits from the sale of surplus honey, if desired, so that no new capital need be put into the enterprise.

The first few colonies of bees may be purchased from a neighbor, or they may be purchased as package bees from dealers in the southern states. Sometimes a beekeeper who has more bees than he wants will sell a colony established in a hive. Or a beekeeper who does not want to part with a colony in a hive may be willing to sell one during the swarming season. He should be furnished a fully-equipped hive into which the swarm can be placed when it is captured. Most beekeepers who sell bees to a neighbor without experience are quite willing to assist in moving and placing the colony in its new location and to give advice throughout the season.

There are some disadvantages in buying from a neighboring beekeeper, the most important of which is the danger that the bees may have disease. No bees or equipment should ever be acquired unless they are known to be free from disease. No purchases should be made from anyone who cannot show a recent bee inspection certificate stating that his bees are free from disease.

Each colony should have enough bees to cover at least six frames in the hive. The combs should be straight and built down close to the bottom bars. Insist upon colonies with combs which contain mostly worker cells in which young worker bees may be reared. If the combs sag in the middle and the cells are not regular in shape with even sides, the bees will use them only for storing honey and the brood rearing space will be reduced.

Sometimes bees in old boxes, "gums", or other non-modern equipment are offered for sale at what seems bargain prices. When the danger of disease, which is very likely to be found among bees in such condition, is considered, the prices may be very dear. Also the cost, labor, and inconvenience of transferring such colonies to movable-frame hives may be as great as the cost of bees purchased in modern equipment.

Package Bees

Combless package bees, bought from reliable dealers, are nearly always free from disease. The states in which package bees are produced maintain efficient inspection and certification. Furthermore, the process of keeping bees away from combs for several days and feeding them only sugar syrup during this time, tends to elimi-

nate the transfer of any disease infection which might have existed in the colony from which they came. The names of reliable dealers can be secured from bee journals.

A three-pound package installed in a hive at the proper time should produce as much surplus honey as the normal overwintered colony. Orders for package bees should be placed in the late fall or early winter for delivery about a week before the average time for fruit (apple) to bloom in the locality in which the bees are to be established.

Full preparation should be made so that the bees can be installed in hives on the day they are received. Hives containing frames with fully drawn combs—one hive for each package—should be prepared and placed in their permanent locations. If no combs are available, as is likely in the case of beginning beekeepers, frames with full sheets of foundation may be used. However, little, if any, surplus honey can be expected the first season from packages established on sheets of foundation.

THE BEES should be transferred to the hives rather late in the afternoon so there will be no flight until the following day. Sugar syrup, prepared by dissolving cane sugar in water, equal parts by volume, should be prepared. About 10 pounds should be given each colony when the packages are installed. This can best be given to the bees from friction top pails, the lids of which have been punctured in 20 or 25 places with a three-penny nail. Before the packages are opened, a little of the sugar syrup should be "painted" on the screen sides with a brush. This will be taken up by the bees and will serve to quiet them as bees which are filled with honey or syrup do not sting readily.

Remove four or five frames from each hive, just enough to leave space into which the bees can be "poured" from the package. Pry off the small square board on the top of the package and remove the syrup can and the cage containing the queen, both of which will be exposed to view by the removal of the board. The bees can then be "poured" into the open space in the hive by inverting the shipping cage and alternating tipping each end up slightly. Slight downward jerks of the cage in these positions will cause all the bees to fall from the cage into the hive. Replace the frames which were removed—gently so that the bees are not injured—and cover the hive with the inner cover.

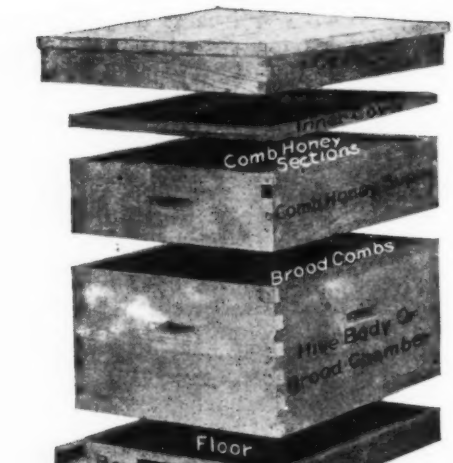
Next, the metal screen over one end of the queen cage should be removed and the open end of the cage inserted into the entrance of the hive to allow the queen to crawl into the mass of bees on the bottom of the hive. Care must be taken that the queen does not leave the cage before it is inserted into the entrance of the hive and thus fly into the air and be lost. (Do not expose the cage containing the queen to the direct rays of the sun.)

As soon as the bees and the queen have been placed in the hive, invert the pail containing sugar syrup over the hole in the center of the inner cover. An empty super should be placed on top of the hive to protect the pail and the metal or outer cover placed over this. The entrance of all hives containing package bees should be contracted to a small space by use of the entrance reducer. This will help to conserve warmth and prevent possible attempts at robbing by other bees.

As a rule only limited amounts of pollen and nectar will be available at this season and a colony established from package bees may require supplementary feeding. If combs with stored pollen are available they may be given; otherwise a pollen supplement or substitute may be used. As the season advances pollen will be available in the field. A second 10-pound pail of syrup should be given as soon as the first has been emptied, and additional amounts made available to the bees as required.

In general, a colony established from package bees will require a pound of sugar syrup a day to prepare properly for the June honey flow. Of course, this amount may be reduced in proportion to the amount of nectar available from fruit, dandelion, and other nectar-producing blossoms.

If conditions are correct, the bees will begin to store the sugar syrup and to gather nectar and pollen within a very short time, and the queen will begin to lay, and the colony will then have begun its normal activities.



Parts of a modern hive.

Equipment

Bees were formerly kept in straw skeps, "beegums", or boxes of almost any description, but modern beekeeping cannot be carried on with such equipment. Because of the need for easy inspection of the brood nest to detect and control bee diseases many states have passed laws prohibiting the keeping of bees in anything except movable-frame hives.

There are several types of hives with movable frames, differing chiefly in size and shape. Each of these has certain advantages but the so-called standard, or Langstroth, hive is most generally used. The beginner will find this type of hive the most easily obtained in most localities, and the most convenient to use as almost all equipment and methods of bee management have been developed for it. This hive is 20 inches long, 16 inches wide, and 9⅝ inches deep. It contains 10 frames. **No hive of smaller size should be used as at least this much space is needed for proper brood rearing.**

The principal parts of a hive are the bottom board, the hive body or brood chamber with frames, the inner cover, and the outer cover. A hive stand with alighting board is sometimes used. All of these parts and a comb honey super with section holders, sections and fences, are shown in their relative positions in the illustration. To produce comb honey, two hive bodies with frames, and at least two comb honey supers with section-holders, sections, etc., are needed for each hive. Other equipment should include a good bee veil, a pair of bee gloves, a smoker, a hive tool which is used in opening the hive and taking out the frames, and an imbedder for use in placing foundation in frames.

To produce extracted honey, not less than four hive bodies with frames and a queen excluder are needed for each colony. In addition an extractor, uncapping knife, uncapping can, and honey storage tank will be required.

The following is a list of items that will serve as an excellent outfit for the beginner in beekeeping:

Two colonies of bees in modern hives.

Two additional hives complete with frames, bottom board, and covers for increase.

For these hives — 2½ pounds of medium brood foundation, also one bee-smoker, bee veil, one pound No. 28 tinned wire, spur wire imbedder, and hive tool.

For comb honey production, in addition to above:

Four comb-honey supers, about 120 sections, three pounds of thin foundation.

For extracted honey production, in addition to above:

Six supers fitted with frames, 7½ pounds of brood foundation, two queen excluders, one honey-extractor, one honey tank, and one (steam-heated) uncapping knife.

Prices on this, and other bee equipment, can be obtained from manufacturers' catalogs. Directions for setting up hives, making frames, folding sections, imbedding foundation, etc., are furnished with such equipment which is usually sold unassembled.

(to be continued)

The Eastern Honey Outlook for 1954

By Roger A. Morse, Ithaca, N. Y.

THE SUCCESS of the various state and national advertising programs for honey are having a definite affect on sales according to Mr. Harold Andrew, General Manager of the Finger Lakes Honey Producers' Cooperative at Groton, N. Y.

During October the Cooperative sold more honey, both bakery and table grade, than any previous month in its history. The increased sales and increased use of honey have made it possible for the Cooperative to raise its prices to buyers during the past month and this in turn means more money for the beekeepers. It should also indicate to those who pack their own honey that they too might well follow this price increase.

The increased use of honey is due to many factors. National Honey Week and the New York State promotion program have resulted in many radio and newspaper releases which have affected honey sales. This has increased the use of honey by bakers and many bakers now advertise on their label that they use honey and are proud to do so. This in turn has affected sales of table grade honey, Mr. Andrew felt, by merely calling attention to a wholesome product.

It was estimated that the overall use of honey by bakers has increased by about 25 per cent in the past two years. The advertising programs have had a good effect but it was felt that this increased use of honey was also due to the availability of standard uniform blends of honey now supplied by packers.

The light honey crop in New York State is probably about 20 per cent less than last year. The buckwheat crop was a little better than during recent years. There was much less fall flower honey produced however.

There is considerable buckwheat honey now available mainly because the Jewish holidays, during which buckwheat honey is used, came before this year's crop was on the market. This honey will probably be absorbed before the next crop is harvested because of the demand.

This is good news for beekeepers and demonstrates that when beekeepers work with their various organizations increased sales and a better price can be obtained for honey.

Washington State Plans Bee Poisoning Study

"Despite our grower education program we still have a bee poisoning problem this year, mainly in tree fruits," states the chief entomologist of the Washington State Experiment Stations. Reporting in the October issue of WISCONSIN HORTICULTURE, he added that "Most of this poisoning has been due to mistiming of sprays for insect pest control."

To remedy this situation a full time study of the bee poisoning problem was inaugurated July 1, 1953. Dr. Carl Johansen, entomologist at the Irrigation Experiment Station, Prosser, was appointed to take charge of the project.

Johansen plans to expose groups of bees to various field insecticide treatments to determine the effects on the insects. He will also study the effectiveness of honey bees in tripping alfalfa blossoms. Honey bees will be exposed to common dusts and sprays as well as those still in the experimental stage. The spray problem on tree fruits and legume seed crops will also be studied.

Beekeeping Regions of California

By Elbert R. Jaycox, Supervisor of Apiaries, Sacramento, California

THE CHOICE of beekeeping locations in California is a wide one. The size of the state and the diversity of the crops and wild plants makes the selection somewhat difficult. Honey production and pollination are very widely scattered over the area, but the production of package bees and queens is centered in the Sacramento Valley. The combination of the early deciduous fruit bloom and a late main flow, makes this area produce an abundance of bees and queens.

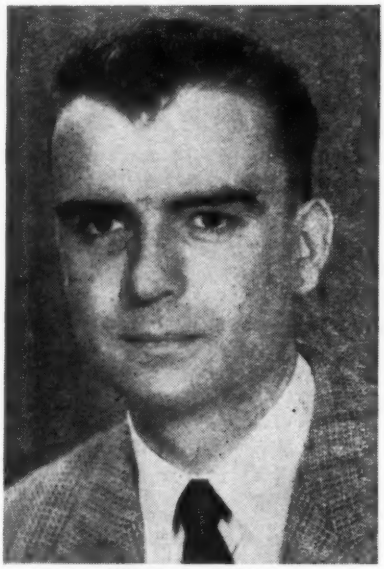
Most beekeeping in California is migratory with from two to five moves a year. For this reason, many beekeepers live in cities or some distance from the area where the major part of their honey production or pollination is done. The variations in climate in the different parts of the state make it easier to pick a desirable spot to live and then operate bees from there.

The state can be divided very roughly into four regions: primary, secondary, marginal, and submarginal. There are many exceptions in each one, but in most areas, except the arid southeastern section, small apiaries will survive and produce some surplus for the beekeeper.

Primary Region: This area is the most dependable for commercial beekeeping. Primary honey plants are alfalfa (**Medicago sativa**), cotton (**Gossypium** spp.), yellow star thistle (**Centaurea solstitialis**), (**citrus sinensis**), manzanita (**Arctostaphylos** spp.), wild buckwheat (**Eriogonum** spp.) and lima bean (**Phaseolus** spp.). The several irrigated sources help to stabilize flows in this region.

All or parts of the following counties are included in the primary region (see map):

1. **North Central area:**
   Siskiyou, Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Placer, Yolo, Sacramento, and Solano.
2. **South Central area:**
   San Joaquin, Contra Costa, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern.



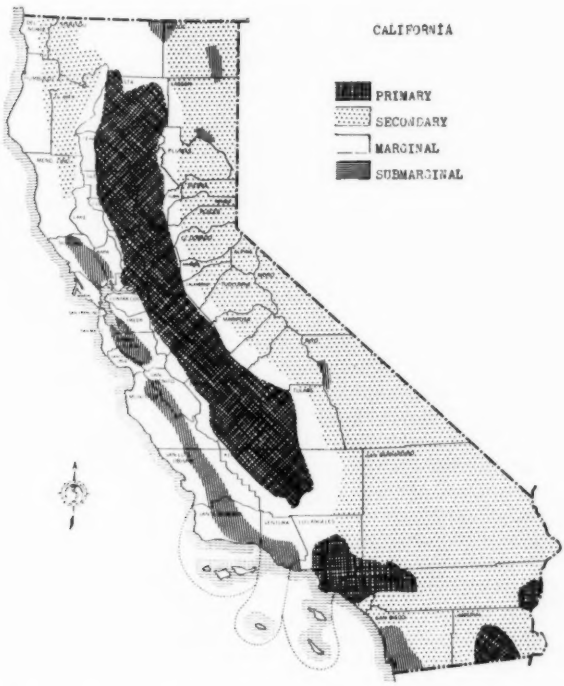
Elbert R. Jaycox

3. **Southern area:**
   Los Angeles, Orange, San Bernardino, Riverside, and Imperial.

Secondary Region: This region is primarily a region of irregular honey flows from wild plants such as the sages (**Salvia** spp.) and wild buckwheat (**Eriogonum** spp.). Several smaller areas have been included which are important for their deciduous fruit bloom and early spring flowers such as mustard (**Brassica** spp.). Included, also, are small acreages of alfalfa (**Medicago sativa**) and clovers, alsike (**Trifolium hybridum**), and sweet clover (**Melilotus** spp.).

All or parts of the following counties are included in the secondary region (see map):

1. **Northeastern area:**
   Modoc, Lassen, Siskiyou.
2. **Central area:**
   Sonoma, Napa, Marin, Alameda, Santa Clara, San Mateo, Santa Cruz.
3. **South Coastal area:**
   San Benito, Monterey, San Luis Obispo, Santa Barbara, Ventura, San Diego.



Marginal Region: The marginal region is one that generally supports few commercial apiaries. Much of the land is native pasture and wooded or brush-covered land. The coastal climate of some of the area is unfavorable for bees. Honey plants in the area include eucalyptus (**Eucalyptus** spp.), sages (**Salvia** spp.), buckwheat (**Eriogonum** spp.), blue curls (**Trichostema lanceolatum**) and fireweed (**Epilobium angustifolium**). California buckeye (**Aesculus californica**), a plant harmful to bees, is abundant in part of the area.

All or parts of the following counties are included in the marginal region (see map):

1. **Northern area:**
   Del Norte, Humboldt, Mendocino, Lake, Colusa, Glenn, Tehama, Shasta, Siskiyou, Lassen, Plumas, Butte, Yuba, Nevada, Placer, El Dorado, Napa, Sonoma.
2. **Central area:**
   Marin, San Francisco, San Mateo, Contra Costa, Alameda, Amador, Calaveras, Tuolumne, Mariposa, Madera, Fresno, Tulare, Santa Cruz, Santa Clara, Stanislaus, Merced, San Benito, Monterey.
3. **Southern area:**
   San Luis Obispo, Santa Barbara, Ventura, Kern, Los Angeles, Orange, Riverside, San Diego.

Submarginal Region: This region is characterized by mountains and desert. Small cultivated valleys and a few irrigated areas are the only beekeeping locations in this area. In the Southeastern region, water is the limiting factor. With enough water there would be areas of cultivated sources of nectar.

All or parts of the following counties are included in the submarginal region (see map):

1. **Northern area:**
   Del Norte, Siskiyou, Humboldt, Trinity, Mendocino, Modoc, Lassen, Plumas, Sierra, Nevada, Placer.
2. **Central area:**
   El Dorado, Amador, Alpine, Calaveras, Tuolumne, M o n o, Mariposa, Madera, Fresno, Inyo, Tulare.
3. **Southern area:**
   Kern, San Bernardino, Los Angeles, Riverside, San Diego, Imperial.

Selection and Installation of Honey Pumps

By Herbert R. Pallesen, N. Y. Agricultural Experiment Station, Geneva, N. Y.

The author gratefully acknowledges the financial support of the Dyce Processed Honey Fund, Department of Entomology, Cornell University.

OVER THE years honey samples have shown a definite increase in turbidity. This condition, which is mostly man-made, reduces the eye appeal and sales of the final product. This undesirable turbidity in some honeys can be traced to air incorporation somewhere in the extraction process. Honey pumps cause most of this cloudiness, either because they are not of the proper type or because they are improperly installed.

A rotary pump of one design or another should be used for honey or any viscous liquid. It consists of a fixed casing containing gears, vanes, pistons, cams, segments, or screws. Their components operate with a minimum of clearance, in such a way that a positive displacement of the product occurs with each rotation of the drive shaft.

Why Should a Rotary Pump be Used?

The question, "Why should a rotary pump be used?", is probably in the mind of the reader. The viscosity of honey is extremely high. At room temperature it is 8,400 times more viscous than water. This viscosity greatly affects the total head or pressure that can be developed by a centrifugal pump, which is sometimes used in place of a rotary pump. This loss of head with increasing viscosities is due to increased friction as well as the overall effect of the viscosity on the flow configuration or characteristics in the revolving impeller and casting.

Pumping efficiencies are also reduced with increased viscosities. For example, when water is pumped at 35 gallons per minute (g.p.m.) with a given centrifugal pump, the efficiency is 30 per cent. When the identical pump is used for the same g.p.m. but with a product 5,000 times more viscous, the efficiency is decreased to four per cent. This is actually not a fair comparison, since the peak of the efficiency curve with water is not reached until 140 g.p.m. are pumped, but it serves as an illustration.

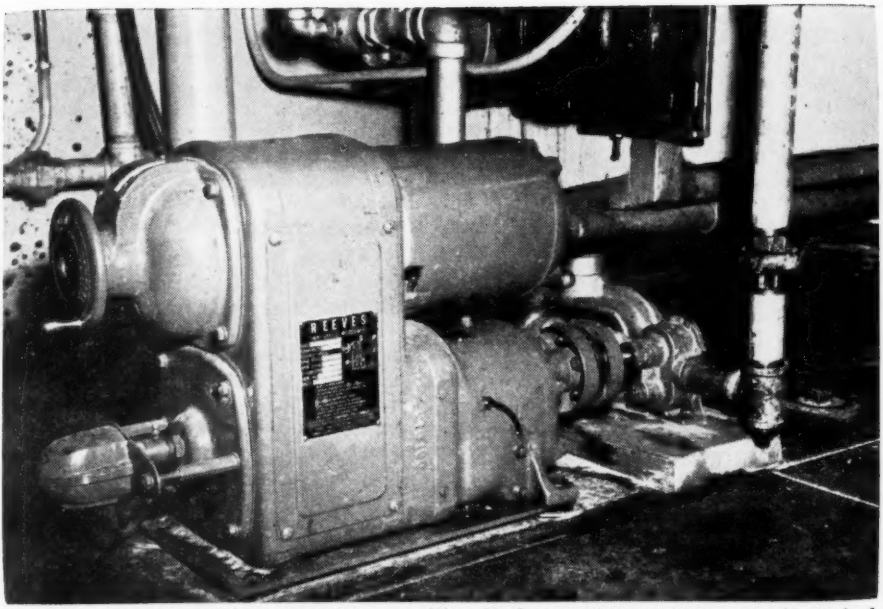
Herbert R. Pallesen

Another objection to centrifugal pumps that makes them undesirable for use with honey is the whipping action that is caused by the impeller. A centrifugal pump gets its action from centrifugal force, which is directly proportional to the revolutions per minute (r.p.m.). This high r.p.m. required for efficient operation whips the honey to such an extent that it turns white due to incorporation of finely divided air bubbles. This air generally gets into the honey through the shaft seals and face plate.

Types of Pumps in Use

The type of rotary pump in general use in extracting houses is the spur gear type. The other types, although differing in appearance, have similar characteristics and require the same precautions in installation.

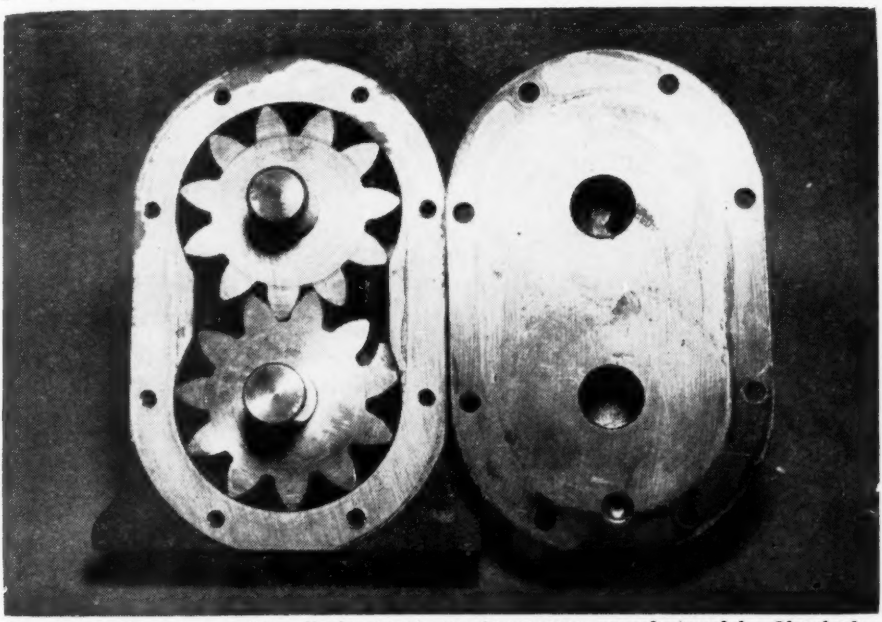
The spur type pump consists of two gears that have very close clearances with the casing. One gear is keyed to the driver shaft and rotates with it while driving the other gear mounted in parallel. Where the gear teeth come in contact, they form a fluid tight joint. When the pump is primed, liquid flows in between the gear teeth, on the suction side. As the gears rotate the fluid



A variable speed control connected to a positive displacement type pump so as to control pressure and flow rate of the honey being pumped.

is trapped between their teeth and the casing, and is carried to the discharge side of the pump. Since the liquid cannot return to the suction side of the pump, sufficient pressure builds up to force it out of the discharge pipe.

It can be seen that the successful operation of this type of pump depends upon maintaining close clearances throughout. This means that the liquids



The constitution of a positive displacement gear-type pump manufactured by Oberdorfer Foundries of Syracuse, New York.

pumped must be nonabrasive and free from grit.

Spur-gear pumps are intended for slow speed operation up to 600 r.p.m. for handling viscous liquids that have lubricating qualities. When a liquid such as honey is being pumped, the r.p.m. should be further reduced. This is due to the high viscosity of the honey which makes it necessary to allow more time for the liquid to fill the spaces in the rotating elements. If greater flow rate is required, it would be more desirable to increase the pump size rather than the r.p.m.

ASSUMING THAT the r.p.m. is increased, the flow to the suction side of the pump might not be equal to the theoretical delivery, hence a vacuum may be formed. Under these conditions the seals around the shafts and face plates would leak, permitting the incorporation of air in the honey. All honey pumps when first installed should be tested with a vacuum gage installed in the pipe on the suction side. This will make it possible for beekeepers to regulate the r.p.m. so as to avoid the formation of a vacuum.

Best results are obtained when the speed of the rotating parts of the pump are kept comparatively low. From this information the recommended r.p.m. of about 30 to 200 is obtained. A high r.p.m. can only be obtained, without vacuum, when the suction side of the pump is flooded. When honey is being pumped, the flow rate to the pump should be equal to or greater than the discharge rate. This will eliminate incorporation of air that is caused by running the r.p.m. of a pump too high.

Another fact that will help in rotary pump operation is the elimination of all unnecessary suction lift or friction. This can best be done by installing the pump as close as possible to the product. Furthermore in piping the suction side of the pump to the product, the pipe should also be as large as possible and all ells, tees, and other pipe fittings that increase the suction lift should be eliminated. Honey pumps that have been installed according to these suggestions have successfully pumped honey at 57 degrees F. without formation of a vacuum.

The use of an efficient pump greatly helps the handling of honey in the honey house. And while more pumps will be used in the future, the increased turbidity in honey should be avoided. The selection and installation of a proper type of pump should eliminate most of the cloudiness often found in honey.

"Hopalong" Your Honey Sales with a Famous Name

That is the philosophy of R. D. Bradshaw & Sons of Wendell, Idaho, who have the exclusive franchise for the use of the Hopalong Cassidy name on the honey.

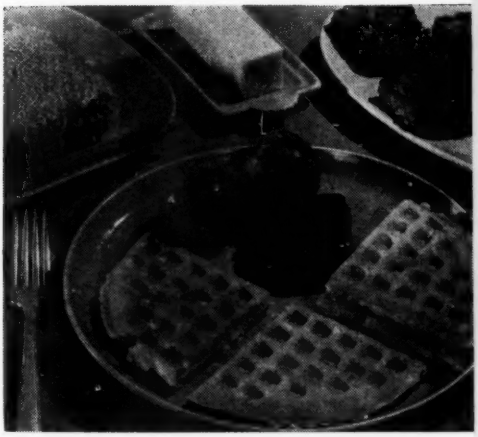
Hoppy is one of the few screen cowboys who can successfully compete with the popularity of children's "space shows". His popularity with children will unquestionably help to sell a lot of Bradshaw's honey.

Honey Waffle Varieties

By Mrs. Benj. Nielsen
Aurora, Nebraska

MOST FOLKS who like honey like it ON waffles, but the Nielsens like it ON and IN waffles. This golden sweet imparts a delightful flavor and assures a beautiful deep golden exterior.

This delicious fare need not be confined to the breakfast table. Given half a chance waffles go a-partying. Crisp chocolate ones invite a scoop of vanilla ice cream, with honey topping, of course. Beautiful to look at and yummy to eat! Plain ones take on a party air when treated to creamed chicken, dried beef, or ham!



Honey bran waffles—Photo courtesy the Kellogg Co.

Given a good basic recipe possibilities are limited only by your imagination. Add one and one-third cups chopped uncooked apples and one-eighth teaspoon cinnamon before folding in egg whites; add one-half cup finely chopped ham before folding in egg whites; sprinkle diced bacon over the batter after it has been poured on the iron; stir in two ounces chocolate, melted (nuts are optional) before egg white addition; add one cup thinly sliced bananas to batter; or one cup grated Cheddar cheese. Now go on from there!

Why not invite the gang over for Sunday night waffle supper? Tell them to bring their waffle irons (we do) and have several going at one time. It's lots of fun and another boost for honey!

Basic Honey Waffles

Two cups sifted flour, 3 teaspoons baking powder, ½ teaspoon salt, 3 eggs, separated, 2 tablespoons honey, 1½ cups milk, and 5 tablespoons melted shortening.

Combine and sift dry ingredients. Add honey, milk, and melted shortening to beaten egg yolks; add to dry ingredients, beating until smooth. Fold in stiffly beaten egg whites. Makes 6.

Honey Bran Waffles

Three eggs, separated, 2 tablespoons honey, 1½ cups milk, ¾ cup ready-to-eat bran, 1½ cups sifted flour, 4 teaspoons baking powder, 1 teaspoon salt, and ½ cup melted shortening.

Beat egg yolks well; add honey, milk, and bran; let soak until most of moisture is taken up. Sift flour with baking powder, salt, and sugar; add to bran mixture and stir only until combined. Add shortening. Fold in stiffly beaten egg whites. Bake in hot waffle iron until no steam is visible. Yield: 8 waffles.

Honey Buttermilk Waffles

Two cups sifted cake flour, 2 teaspoons baking powder, ½ teaspoon soda, ½ teaspoon salt, ⅓ cup melted shortening, 2 tablespoons honey, 3 eggs, separated, and 1½ cups buttermilk.

Sift dry ingredients together. Combine shortening, honey, beaten egg yolks, and buttermilk, then add to dry ingredients, mixing well. Fold in stiffly beaten egg whites and bake in hot waffle iron until brown. Makes 6.

Honey Corn Meal Waffles

Two cups corn meal, 3 cups water, 2 teaspoons salt, 2 tablespoons shortening, 4 eggs, 2 cups sifted flour, 1 teaspoon baking soda, 1 cup sweet milk, 4 tablespoons honey, and about 1¼ cups sour milk.

Cook corn meal, water, salt, and shortening, in double boiler 10 minutes, stirring frequently. Cool. Beat eggs until very light and add to mush. Sift flour with soda and add alternately with sweet milk and honey to mush. Add enough sour milk to make a thin batter. Makes 12.

Beekeeping in Finland

By Nils-Johan Enbom, Fredsgatan 2 D 74, Helsingfors, Finland

The snow is deep in a Finland winter.

BEEKEEPING IN FINLAND has been practiced from the beginning of the 19th century. Of course, beekeeping existed before the year 1800, but we do not know much of it. So we can say that organized beekeeping began at the above-mentioned time.

The methods used in Finland are mostly German. In the early days especially, many beekeepers were Church ministers and teachers who had learned beekeeping in Germany during their studies there. Later Sweden also had a great influence upon Finnish beekeeping.

Because of these facts the main part of the hives used now are those German-style hives. There are also quite a few skeps still in use. Of the modern hives those deep German hives are in the majority, but lately the shallow type of frames has become very popular (Langstroth, etc.).

In 1905, Mr. Mickwitz, one of our oldest experienced beekeepers, adopted the Langstroth frame, and since that year it has been in common use (only eight frames in the brood chamber). The German "Zander" frame has been standardized. It was done in order to get just one frame into use. Unfortunately, we still have maybe a dozen or more different frames in use. That makes the manufacturing of hives and equipment more expensive and the handling more difficult.

We also use double-walled hives, which of course makes the hives still more expensive. However, the indications show a development in favor of the shallow frames. We certainly hope we can get rid of too many types of hives and have just one standard.

Even though the Zander hive is now standard, there are lots of beekeepers who would like to have the Langstroth hive as standard. Until recent years we have not had factory-made hive equipment, but we now have a couple of factories. One school teacher, for example, has built a little factory for the manufacture of Langstroth hives.

The Finnish Beekeepers' Central Association, "Mehilaishoitajain Keskusliitto", is a very young organization, established in 1945. Before that year there were only a few local societies, but they were quite weak and did not cooperate very much. Now there are over 30 local societies which all belong to this main one.

Although our beekeeping is not yet

as modern and developed as in many other countries, it has advanced so rapidly these past 8 years that we have our National Organization. We have a State law for bee diseases, and we have a kind of bee division in our University (just courses not research). We also have a co-operative Society for the Honey trade.

Hobby vs. Commercial Beekeeping

BECAUSE OF our relatively cold climate, beekeeping in this country has been just "hobby beekeeping"; however, once in a while some men have had apiaries up to 100 colonies. At this moment we have about 4,000 beekeepers and some 25,000 colonies. Naturally the number of colonies could be much higher.

Speaking of commercial or large scale beekeeping, the opinion has been that it does not pay in our cold climate. It is true that our winters are long and springs cold. Usually the bees cannot even make short flights before April, and the snow usually comes in October. My personal opinion is that we may have even good possibilities for big scale beekeeping. At least we should try it.

In Norway, where the climate is pretty much the same as in Finland, there are a few beekeepers who have more than 600 colonies. When we think of big scale beekeeping in this country, we have to learn how to get strong colonies at the right time and we have to have modern, easy to handle equipment.

A few beekeepers who use Langstroth hives have used two brood chambers throughout the year. But that system is still quite unknown. Most of the different hives are built in such a way that one can not use several brood chambers for a colony. Most beekeepers today leave only seven to eight frames in one brood chamber for the winter.

With our present methods an experienced beekeeper can easily get an average of 50 pounds surplus honey per colony, but there have been some who have gotten up to 140 pounds. However, the average for the country is less than 30 pounds. I think the low surplus yield is not due to the climate and flora but to poor methods.

Our most difficult problem is swarm prevention. The beekeepers have not yet found good swarm control methods, and there are some who don't try to prevent swarming.

Clovers are the most important honey plants. In the spring willows and dandelions are important, while in the fall heather (**Calluna vulgaris**) is of great value in some areas. During the main honey flow there are many other

A natural swarm in an apple tree.

Another Finland apiary in the winter.

plants which play an important part, too. Our honey is light-colored and of excellent quality and taste.

Because of our long cold winters it is not possible to produce package bees for the market. Therefore a beekeeper who wants to increase the number of colonies or to establish a new apiary, has to divide a colony in two or three colonies. But this is not the common way. Many beekeepers still use the old method—they get a natural swarm. One reason for this is of course the inability for swarm prevention. In successful beekeeping, queen rearing plays an important part. Beekeepers in Finland feel very sorry since they don't yet have any queen producers.

Very soon we may get a Government Bee Laboratory, which I think is an important advance for our bee culture. However, until bee research is started, we do not know very much of our bee disease conditions. But we do know that we have AFB, EFB, and Nosema, but we are unaware of its distribution in Finland.

Proclaiming Honey Week in Tennessee

For the first time in state history, a Governor proclaimed "Honey Week" in Tennessee. By this act he gave recognition to a crop that is expressed in millions of dollars annually, and one whose undetermined value for fertilizing fruits, seeds and vegetables is of greater significance. Governor Frank Clement is handing the proclamation to State Apiarist Leslie Little. Looking on are Earl Barham (right), State Chairman of the honey program and Commissioner of Agriculture Buford Ellington.

From Foreign Lands

Some years ago Gleanings carried a page with the above caption. Since our journal is read by beekeepers in over 40 countries of the world it would seem feasible to again have such a page to give readers everywhere a bird's eye view of beekeeping over the world.—Editor.

From "Suedwestdeutscher Imker", October, 1953

BECAUSE OF an unusually low honey crop this year, beekeepers placed their colonies between Wiesental and Gersbach (Germany) in hope of at least a small honey crop. All colonies were placed on scales and kept under observation.

During mid-August colonies showed a marked weight gain, which led to the conclusion that the white pines in that area were giving off a surprising amount of honeydew. Never had the pines, which give off honeydew with the aid of pine aphids, yielded at this time of the year, let alone at a height of 900 to 1100 meters. Upon immediate investigation it was found that a new variety of plant louse or aphid was causing this honeydew flow.

This louse (**Lachnus piceae**), up till then unknown in that part of the country, is larger than the old variety. It is dark gray to black, grows from five to nine mm. in size, and sits on the underside of four to ten year old branches of white pines. They can also be found on larger limbs and occasionally on tree trunks. The female has a large number of live young, of approximately 1.5 to 3 mm. in size. They are light to dark brown in color and are clustered in groups of 30 to 50 around the mother.

There has been a considerable honeydew flow, and specialists are of the opinion that the long drought in that part of the country enabled these aphids to survive, since they had never been observed during normal weather conditions in other years.

The Institute of Beekeeping at Freiburg University is starting an extensive research program to determine the best living conditions for the production of honeydew by these aphids.

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From "La Gazette Apicole", August, 1953

EVER SINCE a mystery by Conan Doyle telling of a murderer who killed his victims with bees, the Cyprian bees have received a bad reputation. This, of course, is not entirely unfounded, however, it has been very much exaggerated.

P. Georghiou, a Cyprian beekeeper, reports not having been stung by Cyprian bees more often in his over 12 years as a beekeeper, than if he had raised Italians. Also, Cyprian bees seem to give a warning before stinging—a "humm" sounding very much like frying bacon, and contrary to other varieties, they can be handled in any kind of weather.

The Cyprian bees are very industrious and can be very vicious, especially with their many enemies. Some of them are ants, moths, and particularly the big, red hornet, which differs from the Western European varieties. They are much larger and have their nest in earth holes. Queens alone overwinter, but are so prolific in the summer, that they are able to build up colonies with up to 5000 inhabitants. This development is only possible by huge consummation of other insects, bees being their main target. Weak bee colonies are robbed in order to feed the hornet's larvae. In this way four to five per cent of the Island's colonies are destroyed yearly by hornets.

Approximately 30,000 colonies are on the Island, which makes about eight colonies to a square kilometer. Many bees are still kept in clay pipes, about four feet long and one foot in diameter. The pipes are piled up and covered with grass or branches against the parching heat.

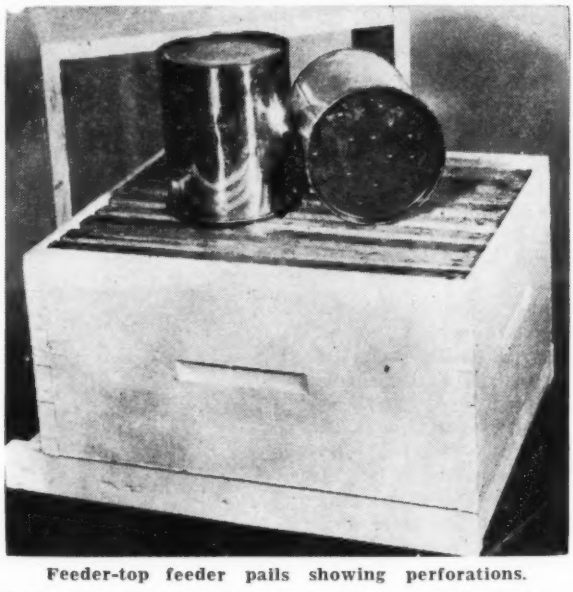
The harvesting is very simple. Honeycomb is broken out of the pipes and is extracted by hand pressure, the remaining honey being left to drip out for several days. The water in which the wax has been washed is boiled down and used for baking. In this way no honey is ever wasted.

Most Cyprian beekeepers own only 20, very few up to 300 colonies in clay pipes, and are seldom able to harvest more than 25 pounds per colony. One drawback in keeping bees in pipes is that only the back of the pipe can be opened, thus making it impossible to ever get at the brood chambers. Many

(Continued on page 30)

Feeding Made Easy

By G. F. Townsend and P. W. Burke, Ontario Agri. College, Guelph, Ontario



Feeder-top feeder pails showing perforations.

THE CHEAPEST and most efficient method of feeding bees is to leave a super of good honey from the previous crop with each colony. However, in some seasons the quality of the honey is poor or the quantity is insufficient; in either case the honey must be supplemented with sugar syrup.

Bees wintered with top entrances usually obtain more flights during the winter months, which helps them to rid themselves of excess waste materials accumulated as a result of poor winter stores. Nevertheless poor quality feed is hard on overwintering bees.

Honey gathered early in the season may granulate before fall, while late fall honey may on occasion be high in water or dextrin content. These honeys do not make good winter feed and should be avoided in so far as possible.

Spring Feeding

Spring feeding should be resorted to only to prevent starvation when sufficient feed was not provided in the fall. If it is necessary to feed while the weather is cold the best method is to fill three or four combs with a heavy sugar syrup and place these in the colony in direct contact with the bees. For filling the combs use a sprinkling can or a two-pound honey pail with the bottom perforated with nail holes. Hold the combs on a 10 to 20 degree slope over a flat pan or tub and pour syrup into the open cells commencing at the high end. When both sides are filled in this manner, a comb will carry about three pounds of syrup. Two parts of sugar to one part of water makes a suitable syrup for comb feeding. However, when the weather is warm enough to permit the cluster to break or the bees to fly it is best to use feeder pails or open feeders supplied with a lighter syrup made of equal parts of sugar and water.

Fall Feeding

For fall feeding, a heavy syrup made of two parts sugar to one of water is used. This reduces the bees' labor of removing excess water from the syrup late in the fall. Warm syrup fed all at one time is preferable as the bees will take it down more rapidly. This is less likely to stimulate the bees into late brood rearing. It must be remembered that the more work the bees do in the fall the weaker will be the spring cluster. Feeding should be done between September 15th and October 15th.

Syrup for bee feed is easy to make

by stirring granulated sugar into hot water. Care must be taken not to scorch the syrup.

Types of Feeders

Many types of feeders are used, but the ordinary friction-top pail is the most popular. A few nail holes in the lid permit the bees to remove the syrup. Care should be taken to avoid leaky lids because the syrup will escape too rapidly and be wasted or start the bees robbing.

Open feeders are sometimes used for spring feeding. This permits feeding a number of colonies with a minimum of labor, since individual colonies do not have to be opened. Troughs or tubs of syrup equipped with floats to prevent the bees from drowning are simply set out in the bee yard. Wooden racks, straw, or corn cobs make satisfactory floats.

Feeding Combs of Honey

Spring or fall feeding may be simplified by adding one or more heavy combs of honey. For fall feeding the two outer combs of the food chamber, which are usually lighter than the others, are removed and two heavy combs of honey put in their place. This operation may be carried out during September or October when the bees are clustered.

For spring feeding one or two combs may be added to a colony whenever necessary. Occasionally this type of feeding must be resorted to in order to save a colony from starvation. Score the capping on the comb to give the bees quicker access to the honey. If necessary in the spring combs of honey may be taken from colonies having an abundance to give to others short of feed.

If there has been any recent infection of American foulbrood in the apiary considerable risk will be involved when moving combs of honey from one colony to another.

The Use of Sulfathiazole

Sulfathiazole should be added as a preventive for American foulbrood infection in cases where extracted honey is fed back to colonies. This recommendation is based on experimental evidence obtained by the Apiculture Division, Central Experimental Farm, Ottawa; Bacteriology Division, Central Experimental Farm, Ottawa; and Apiculture Department, Ontario Agricultural College, Guelph. It has been proven that sulfathiazole is effective as a preventive when added to feed known to contain American foulbrood spores.

This is not a recommendation to use sulfa drugs or any other drugs as a possible cure for honey bee colonies already infected with American foulbrood. Experimental evidence has shown that this would tend to spread the disease.

Procedure — As a preventive, use

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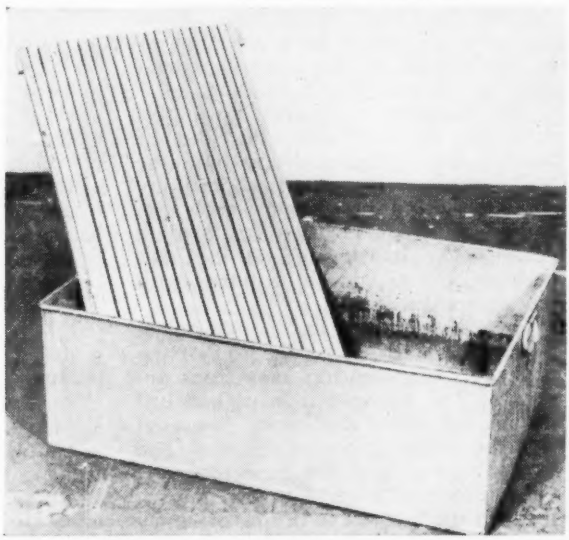

Open feeder with wooden float.

Loading Honey with a Tractor

By E. A. Hogarth, Tara, Ontario

Loading the round Canadian 70-lb. honey cans with a tractor.

DURING THE MONTH of February a year ago we had to ship 700 drums of honey. Ordinarily this is no problem as the transport drives into the loading dock and the drums of honey are wheeled onto the transport, three at a time with a two wheeled bag truck.

Unfortunately the snow was so deep that we couldn't get the transport to the loading dock on the north side of the honey house without a lot of shovelling. Fortunately for us when the village plow is plowing our street the only place it can turn around is at the east side of our honey house. Consequently we always have a well-plowed road right to the large basement door on the east of the building.

The transport could back up to this door but we didn't like the idea of heaving the 70-pound drums onto the trailer truck. One day I noticed my neighbor using his tractor with the hydraulic lift and bucket for loading gravel, etc. It occurred to me that perhaps he could load the honey with this equipment.

He was willing to try it. We bolted a piece of plank along the top of the bucket to keep the top cans from upsetting. The transport was parked just far enough from the honey house to give the tractor room to operate. The tractor drove into the basement and the bucket was lowered to the floor in front of the cans. The drums of honey were piled two high and we loaded the bucket by tipping the drums slightly and rolling on two at a time. Six drums weighing 420 pounds made a load. The tractor then backed out and placed the cans in the trailer where they were rolled off two at a time.

The whole 700 drums were loaded in less time than we could have wheeled them onto the transport at the loading dock. Besides that we had no lifting to do and it was actually the most economical way we ever loaded honey. This year we are using the tractor in preference to wheeling it on.

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FROM FOREIGN LANDS

(Continued from page 27)

modern beekeepers now work with modern hives and removable frames which brings their yearly yield up to 60 pounds per colony. Higher yields can be had in areas growing lemon trees and thyme. Lemon-blossom honey has an excellent flavor and is highly prized. Thyme honey has a strange, but very good flavor.

The Cyprian bee has a longer tongue than any other strain. They also have a strong tendency to swarm. A clever beekeeper will take advantage of their attraction to the odor of lemon-tree leaves, of which he will crush some on a handy branch and within an hour the swarm will alight on this branch, making it easy for them to be caught and start a new colony.

Live and Learn

By Propolis Pete

HAPPY NEW YEAR. It doesn't seem possible, but here we are again with that old, old wish. Just think, twelve whole months have gone by with a complete cycle of beekeeping since the last time we said that. What have we learned in that year?

For one thing, I have learned really to appreciate my observation hive. This isn't a new toy with me. I have had one for years, but it is only lately that I am beginning to realize just how much can be learned from it, in addition to the fun of watching what is going on. While conditions in such a small unit are different than in a power house colony, that is where skill at interpreting what you see and translating it properly will bring big returns in results.

It is set up in my workshop, in a corner where there is no protection from the cold. During bright sunny days it does warm up a bit, but I don't think that the conditions are much different than if it were outside and wrapped. So, I think that the action of the bees is fairly representative of what is going on in a full colony. So let's observe what has happened so far.

Towards the end of last summer, the bees had it so crammed with honey that they were building burr comb all over the thing. They were even starting comb against the glass. This was most interesting to watch. You could see the bees working in the cells, but it was so stuck up that you would have to blast to get it apart. The summer flow shut off like somebody closing the gate, and the fall flow was a dud. It was really an education to see those stores melt away. Actually there wasn't a drop of honey left by the middle of November. I rigged up one of my famous inventions, a piece of plywood for a temporary cover with a hole bored in to take a Boardman feeder cap on a quart jar of honey. The bees immediately moved up, with the top bees sucking down the honey and taking it to the empty cells in the middle of the cluster. That is, they did that on mild days. On cold days, they just hung there quivering. That little handful of bees has used up nearly the entire quart that I originally gave them. And here it is only the turn of the year. Can you imagine what a full-sized colony needs?

I wonder how in the world colonies get by when they are in a single-hive body with maybe 10 or 15 pounds of honey. Yes, a lot of them die off, but a surprising number squeak through.

Last winter I had a colony that must have eaten snow and rain water. They were so weak and poor in stores at packing time that I just didn't bother to unite or feed them. They lived through, and although they didn't give any surplus they are still alive. Of course, after I saw the fight they put up I fed them and babied them along during the spring, but the point is that they did live through the winter on nothing. They look good for next season. They must have lived on sheer will power alone until I felt sorry for them.

SOMEBODY HAS found out through experiments that big colonies use less honey than small ones. On a pro rata basis that is. That probably has something to do with the amount that my observation hive is using. At the same rate, a big colony would need a couple of hundred pounds.

I cannot imagine that this handful of mine will last much longer. When the temperature gets real low, I have an idea that they will go to sleep and never wake up. That's how weak they are, but again I say, you never can tell what bees will do. Be that as it may, the fact remains that the year has turned, and our thoughts turn with it. We stop reviewing what has gone by, and begin to think about what is to come. The sun picks up power fast, and even though the coldest part of the winter is still ahead of us, we know that it won't be long now. Soon we will be seeing young bees in the cleansing flights on the nice warm days that always seem to come no matter how tough the winter may be. Then the crocus blooms, and even though there isn't enough of it to make

(Continued on page 62)

Editorials

It's Baltimore in '54!

IT'S CONVENTION TIME again, and we hope that a lot of our readers will enter into the spirit of friendly cooperation and plan to attend the 1954 national meeting in Baltimore, Maryland on January 27 through 29. Your participation is necessary to make this event a great success.

Many important items will fill the agenda, and it will take some wise council to come up with the right answers to the pressing problems. The elimination of the export subsidy, the future of the Honey Council, and the price support question are only a few of the many important items that will be discussed. So be sure to attend if it is at all possible,—your attendance and participation from the floor will be a great help to leaders of the Federation.

Remember that the attention of many officials of the U. S. Dept. of Agriculture will be focused on this convention. The decisions made at this Baltimore meeting will lay the foundation for the coming year. . . .and all Federation members should participate. The opportunity is available to every member, so if possible, let's go to Baltimore.

We wish to commend the Maryland State Beekeepers' Association, **your hosts in Baltimore.** Dr. George J. Abrams and his staff have done an excellent job of supplying Gleanings and other bee journals with advance publicity on the convention. We believe that convention goers will be especially fortunate to be greeted by the University of Marylands' beauty queens. How lucky you will be.

What Should the Support Price for Honey Be?

THE HONEY PRICE SUPPORT law (Agricultural Act of 1949) specifies support at from 60 to 90 per cent of parity. The latest figures published by the Department of Agriculture were in October, 1952, and showed a parity of 16.3c per pound for all packs. From this figure take off about 1.5c to bring it to a bulk container parity price of about 15c per pound for the average of all grades and localities. Seventy per cent of this figure comes to approximately 10.5c per pound or the average at which honey was supported in 1953.

Each year when parity is refigured in January, one year is dropped off and a later year added. At the start of 1953, this had the effect of decreasing the parity price. It is no doubt safe to assume that this can happen again this year due to this changing of the base years. Last year the parity price dropped about 1c a pound and the average support price for honey decreased almost 1c a pound.

If we assume that parity will drop 1c per pound again this year, then to equal the same support price as last year will require not 70 per cent but 75 per cent of parity. To equal the support price of 11.4c we had in 1952 will require 81 per cent of parity. No one can say this will happen but it looks possible from past experience.

Based on the above assumptions, if the industry feels that the support program should be lower than this year, then a 70 per cent request will probably have this effect. On the other hand, if a support equal to 1953 is desired, a request probably of 75 per cent or more of parity will be required, and if a support equal to 1952 is desired, a request of 80 per cent or better will probably be required.

It is our opinion that too low a price support would be worse than no support at all. It would, in effect, set the market in the minds of the buyer at a figure lower than it otherwise might be.

The industry will have to make its recommendations known to the United States Department of Agriculture by the conclusion of the National Federation meeting at Baltimore, January 27, 28, and 29th. Delegates should have instructions from their state and local associations. Honey buyers will also have opinions and recommendations to make. Perhaps from all of these a sound proposal will come that will be for the benefit of the industry as a whole.

Honey for Athletes

IT IS BECOMING apparent that honey, a high energy food, can be used to advantage by athletes who participate in various forms of sports, especially those involving very strenuous, physical activity.

In this issue, Allen T. Brown of Ontario refers to the work done by Sports College in popularizing honey and making it a part of the diet prescribed for athletes. The fact that the Tiger Cats of the Big Four League, who won the East-West Football Championship, may have been due partly to the fact that members of the team used honey in training. The following are a few highlights from an address given by Lloyd Percival, Executive Director of Sports College, delivered at the Toronto Bee meeting:

> Nineteen of 27 trainers of teams in the last Olympic Games recommended honey as an energy food. Of the participants in the Olympic Marathon, 76 per cent used honey in training, 40 per cent took honey during the race.
>
> Mid-morning let-down or energy lag, which occurs among executive workers, and more particularly among heavy industry workers, can be largely prevented by eating honey for breakfast, and a honey sandwich at mid-morning. Strong tea or coffee sweetened with honey will bring quick recovery from exhaustion and impart a quick pick-up from fatigue.

In the November issue of **The Australian Bee Journal** appears an item concerning Basil Halsall, who recently won a gruelling cyclist race. One item in this athlete's diet was a pound of honey per day. The article goes on to say that it would not take more than a few thousand "Basil Halsalls" to solve all of our honey export worries.

The writer's daughter played on the girl's basketball team in high school a few years ago. It was suggested that each girl take a liberal portion of honey shortly before an important game. The honey-eating girls won the game by a wide margin. They might have won if they had not eaten the honey, but the girls thought that honey helped.

We beekeepers have been altogether too modest about mentioning the marvelous qualities of our product. Some of us have not realized what a wonderful food we have. It's about time to begin proclaiming the virtues of honey from the house tops.

From North, East, West, and South

NORTHERN CALIFORNIA, Nov. 27

Weather: While we have had more fogs and heavier dews than normal, this month has been marked by less rainfall than average. Northern counties, and the Sierras, have received heavier rains and more snow. In one region, near Crescent City, 23 inches of rain fell in 24 hours. At times, the rain fell at the rate of one inch an hour. Needless to say, land slides and floods blocked highways, delayed trains, and caused havoc in many places. Snow in the mountains mean irrigation water and electrical power for the valleys.

Fall rains also mean better conditions for mountain plants and frequently presage good nectar conditions in the spring, if and when favorable weather prevails.

Beekeepers who have been in floods before need not be reminded at this late date to move all of their colonies to locations where flood waters have never been known. In fact, this is a good policy to follow in the location of any apiary. Nor should hives be located in depressions where a heavy downpour may cause temporary flood conditions.

Winter Operations: Here in northern California, most colonies have been moved to almond orchards or to winter locations where bees can take advantage of early bloom. Lids should be fastened down and hives located on dry, solid ground. Most California beekeepers maintain a three-eighths inch entrance, too small for most field mice to enter.

Some contract entrances but most beekeepers just leave the entrance full and try to have the colony strength sufficient to protect against robbing. Most colonies are wintered in two-story hives, although some are reduced to one-story for ease in moving.

Some beekeepers repair their equipment, make new equipment, or remodel their honey house and work shop. More beekeepers than ever are becoming interested in hive hoists and are getting hoists built on their trucks before the heavy spring moving begins.

Number of Colonies: The demand for the use of colonies to pollinate legumes and other crops, has tended to cause most beekeepers to increase their number of colonies to the maximum. When colonies are located three to the acre of alfalfa, they seldom need the attention that honey-producing colonies require. This has enabled many beekeepers to keep more colonies. The result has been an increase in colonies in most sections within driving distance of seed areas.

Experienced labor is not plentiful and there may be a tendency to cut down or to hasten inspections. In northern California it isn't physically possible for the county inspectors to inspect all colonies even once in every two years but most commercial beekeepers are their own inspectors and do not require the services of the county inspector. It takes at least 10 minutes, on the average, maybe five in early spring, to inspect every brood comb in a two-story hive. It takes real man power to inspect an outfit of 3,000 or more colonies.

Some beekeepers simplify inspection by keeping the queen confined to one or two stories. This also facilitates the removal of extracting combs later in the season.

The Honey Market: Most of the honey has been moved out of the hands of the producers, although some are holding until after the first of the year, for income tax purposes, before they sell.

The California honey crop was considerably below average and with poor production in many other portions of the country, the removal of the export subsidy should not have much effect on the price to the producer for the balance of this year. Those who have good quality honey on hand, certainly should have no uneasy feelings about receiving a favorable price.—J. E. Eckert, University of California, Davis.

TEXAS, December 3

Weather: The weather during November was generally normal with moderately cool temperature. Frost was recorded in most sections but there were no extremes of temperature. Rainfall occurred during the early part of the month with normal amounts recorded in east, north, and west portions of the State. Most sections received good rainfall earlier during the season but some areas are still dry.

Bees, Plants, and Honey Crop: Most sections had abundant fall bloom, colonies generally obtained adequate supplies of winter stores and built up strong forces of young bees.

In the mid-coastal region, however, the fall bloom was disappointing. Colonies are reported short on stores and the bee forces weak. The roadside aster, **Aster exilis**, plentiful over a large portion of Texas and which yielded well last fall failed this fall, at least in our immediate area. Frost weed, yellow top, goldenrod, snow-on-the-mountain, and broomweed yielded well during the early fall over many areas.

In Southwest Texas fall-flowering shrubs yielded well, while in North Texas top bloom of cotton yielded surplus and provided winter stores.

A generally fair crop was obtained from cotton this year but not sufficient to overcome the short crop of sweet clover and the year's total honey crop for Texas likely remains below normal.

At this time the scarlet color of the foliage reveals the abundance of the Chinese Tallow Trees, **Sapium serbiferum.** The bloom occurs during midspring and is important to bees in Southeast Texas. In Houston and other cities the trees are used abundantly in street, park, and yard planting and considerable honey is stored from this source. The honey is of dark amber color and peculiar strong flavor but is of value to bees.

With soil moisture now more favorable than in several years, many of our wild plants, particularly early season ground flowers, are coming back. Good stands of vetch from volunteer and early fall seedings are reported from most of its growing area. Reduction in cotton acreage for the coming year seems assured to conform with government production quotas and price controls. This leaves sizable acreage for feed and soil improvement crops, principally legumes. Increase in acreage of sweet clover does not seem likely with other legumes finding favor with farmers but these are of less value to bees than sweet clover.

Market: Movement of honey in the retail market remains satisfactory and prices are steady. Comb honey remains in short supply. Some small producers supplying the local trade report satisfactory sales. Some have disposed of their entire crop.

Miscellaneous: Migrations of apiaries have been made to the Lower Rio Grande Valley. With improved soil moisture, citrus orchards, vegetable crops and bee plants in general are in good condition. Orchards lost from the early 1951 freeze are being steadily replaced with improved varieties. Beekeeping and other enterprises of the Valley are sure to come back with improved water supply.

Falcon Dam, joint project of the governments of the U. S. and Mexico, was recently completed. The reservoir above the Lower Valley already has impounded over one million acre feet of water at half its normal capacity. Normal flow of water is released into the river below the dam without lowering the water level in the reservoir. Flood waters during the next six months are expected to fill the reservoir to the spillway.

Every so often theft of colonies of bees is reported from one locality or another. Recently such loss of colonies was reported by one of our larger beekeepers. Locating yards within sight of a house discourages theft of bees to some extent; however, it is not always practical to locate yards in such situations. Some beekeepers are branding their hive equipment which discourages theft and helps in the identification and recovery of the property whenever it is located.

Beekeepers regret to learn of injuries

suffered by T. L. Redwine of Fort Worth, T. E. Turner of Saginaw, C. A. Goodner of Burleson, and J. G. Thomas of Wellington, in a car collision on their homeward trip following the State Beekeepers' Meeting in College Station on October 27. All were hospitalized for severe bruises and bone fractures were sustained by three of the men. They have been released and returned home since, and we are pleased to learn that they are well on the road to recovery.—A. H. Alex, College Station, Texas.

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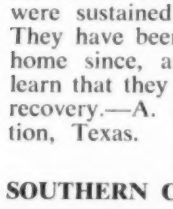
SOUTHERN CALIFORNIA, Dec. 10



Weather: Some early fall rains were encouraging. The moisture will commence growth on sage and buckwheat plants. However, considerable more moisture is now needed soon in order to insure good sage and buckwheat crops for next season. Strong winds have dried out the early moisture to a considerable extent. The condition of the plants is about normal. The condition of colonies varies a great deal. Some colonies removed from alfalfa seed pollination areas are short of stores and low on field force. Other colonies that were left in areas where they could make cotton honey are in much better condition.

Market: Most all of the honey is out of the hands of beekeepers. The dealers and packers do not have large stocks. It has been sold and shipped. Thus the inventory picture is encouraging. As high as 16c per pound has been offered and paid for orange blossom honey. Light amber to extra light amber from 10½ to 11½ and from 12 to 12½ is paid for white clover honey. The removing of the export subsidy did not depress the market as some were concerned it would. The market has been quite active and stable. There has been a stronger tone to the beeswax market. It seems to have found its level.

Miscellaneous: Attendance at the California State Beekeepers' meeting at San Jose exceeded expectations. The annual banquet completely filled the large banquet hall of the hotel. Other facilities were taxed to capacity. Beekeepers seemed encouraged regardless of the extremely short crop in Southern California. The convention was interesting, educational, and enjoyable. —Woodrow Miller, Colton, Calif.

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OKLAHOMA, December 1

Weather: Weather is a subject most talked about, and nothing done about. Whether its cold, or whether its hot, we will have weather, whether or not. Rainfall for 1953 in Duncan through October reached 38.73 inches which is more than four and one-half inches above the average of 34.15 inches here for a full 12 months. Despite some dry times in Stephens County this year, rainfall every month has been near or above normal except for January, February, April, and September. October's downpours here totaling 8.47 inches compare with the October average of 3.20 inches and the October, 1952 rainfall total of exactly zero.

Bees: Bees during the fall months worked on asters, sunflowers, broomweed, and goldenrod. A light flow was reported over most of the state. Our heavy flow for June and July didn't happen this year as expected. Instead we had hot and dry weather with broiling hot sun and westerly winds. Early spring bees built up only to have heavy losses later. Bees are in only fair condition for winter; some fall feeding will have to be done.

Honey: Honey production in and near Duncan was very light. Mr. J. H. Bearden had bees on Wild Horse Creek, 15 miles east of town and had 85 pounds per colony. Sweet clover and vetch in most areas was scarce because of a very dry season in 1952. The honey crop for the year over the state will average below normal. However, with the drouth, reduction in acreage

of sweet clover and vetch don't look too good for the beekeeper.

National Honey Week October 26 to October 31 was a success. Again this year the U. S. Department of Agriculture is actively cooperating with producers, packers, and distributors of honey in a program to remind consumers of the availability of this fine national food.

Miscellaneous: During our vacation, in September, we visited the large and beautiful state of California. We visited a brother of mine who lives in Corona. He works for the Sunkist Lemon Exchange.

While there, I picked up the telephone and put in a call to L. L. Andrews. His wife answered and advised me that Mr. Andrews was ill and was unable to have company. His home is right in the heart of the city on the circular boulevard from which the city got its name. Your readers will probably remember him, because for a quarter of a century, he sent in reports from Southern California.

We brought home a quart of orange blossom honey and expect to try it out for breakfast some morning with biscuits.

As President of the Stephens County Beekeepers' Association, I can say it is doing fair. Our Secretary, Anna McMahon, and her assistant did a wonderful job preparing our Agriculture Exhibit at the 1953 County Fair. We made an 8 x 10 picture of the booth. It was very pretty with the Blue Ribbon we received. — V. K. McMasters, Duncan, Oklahoma.

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MICHIGAN, December 3

The Past Season: In my last report written on July 2 we had made a rather slow start towards a honey crop in this state. Areas which received a reasonable amount of rain ended up with a fair crop of honey but many beekeepers harvested a very light crop. Even though Michigan has an average rainfall of about 30 inches we are subject to drought conditions during the summer. Hot spells which last too long dry up nectar in the plants. I think that this factor had much to do with our very spotted crops this year. Moisture has not been too plentiful this fall but legumes do not appear to be suffering and might well be in good condition for next season.

Insecticides: There is a tendency on the part of many beekeepers to think of the use of insecticides as an unmitigated evil as far as honey production is concerned. There are, however, situations where I am sure beekeepers are benefited by insect control. For instance, lygus bugs such as the tarnished plant bug are widespread and very harmful to alfalfa and and other legumes. The bug sucks juices out of the developing flower bud and the bud withers and falls off without maturing. This is called blasting the buds. Besides not forming seed, the blasted buds don't produce nectar. If the field is to be sprayed for lygus it is obvious this should be done in the bud stage or if it is left until bloom the insects will have done much of their damage. So, if the insects are controlled by spraying at the proper time the beekeeper will be helped because there will be more bloom available.

The potato leafhopper is another interesting insect that must do the beekeeper much harm. It is widely known as the insect that causes "hopper burn", which makes potato leaves brown and curl before the end of the season. If you check the statistics you will notice that average potato yields have about doubled since the advent of DDT which controlled the leafhoppers as well as other insects. When the hopper sucks juice from a plant it is thought to secrete a digestive juice which interfers with chlorophyl production in the leaf. The result is a yellowing and drying up of the leaf.

It is not generally realized that this insect can also do serious damage to alfalfa and other clovers, particularly to second cutting in Michigan. During the last two summers I have had some opportunity to study the good and the bad insects affecting legumes. It has been somewhat of a surprise to find that much of the rapid yellowing of

alfalfa has been clearly caused by leafhoppers even though it is generally referred to as wilt, effect of drought, etc. Plots treated with insecticides remained green and had profuse bloom. Untreated plots turned yellow and bloom was reduced. Treatment for this pest could undoubtedly benefit the beekeeper. Leafhoppers don't winter up here but they blow up from the south and establish a population after the first hay is cut. Insecticidal control on a field could mean more nectar as the tendency is to have considerable bloom before hay is cut the second time.

Control of other forage crop insects such as the spittlebug can be of benefit to the beekeeper. Spittlebugs are controlled by spraying early in the spring and more vigorous plants result.

The spraying of forage crops for insect control is a new development that has good possibility of benefiting the beekeeper providing the insecticides are not applied during bloom.—E. C. Martin, Assistant Professor of Entomology, Michigan State College, East Lansing.

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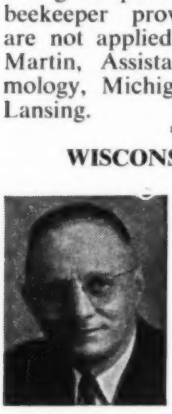
WISCONSIN, December 1



The Clover Crop: The prolonged drought during October and November is of concern to beekeepers here. Light rains in the southern part of the State penetrated the soil only a few inches. In talking over conditions with specialists in the Department of Agronomy at the University they gave the opinion that on light soils both alfalfa and clovers have been injured if not killed. On heavy soils the plants made little root or top growth and while they are still in fair shape, more moisture and a snow cover is needed for good wintering.

Retailing Honey: The encouraging thing about the honey market here is that our big super markets are increasing honey sales steadily. We used to complain that the reason honey didn't sell better was because grocery stores didn't display it, and so customers didn't buy on "impulse". Now honey is displayed as attractively as other items, and as customers pass down the aisles with their carts they are reminded of honey every time they pass the display.

Some of the better super markets have cooperated with beekeepers in special "in the aisle" display which increases sales for a time. Ten cases of five-pound jars, stacked in the aisle with the front of the cardboard cases cut away to expose the labels, sold out in about ten days. Another store "dumped" five cases of 24 one-pound jars in an "end bin" and sold them in about two weeks. Of course the regular display was maintained.

We find that all standard sizes of jars sell well. Last year we omitted the two-pound jar, furnishing only the one and five-pound sizes. That was a mistake and we are selling more honey this year supplying the three sizes. Several beekeepers have remarked that they sell as many cases of two-pound jars as the other sizes.

We find that the location of the store and the kind of customers they serve determines the size of the jar that sells best. Apartment dwellers buy the one-pound jars while the five-pound jars sell well in stores on the edge of town—or in the rural areas.

The most important factor in increasing sales is to furnish a constant supply of good honey so that customers will have confidence in the brand, which leads to "repeat buying". It takes time, effort, and patience to build up a market, and those not in a position to do the job properly should sell their honey at wholesale.

Honey Promotion: For promotion of honey we still favor the long term, steady, conservative, and truthful type of advertising put on by the **American Honey Institute.** If we want them to do twice as much work, all we need to do is give them twice as much money. Our thanks to the Institute's Board of Directors and Mrs. Harriett Grace for holding the ship on an even keel, faced in the right direction.

A big crop from package bees was obtained in sections of the State where the second crop of alfalfa yielded well in August and September. Just why alfalfa produces seed and yields nectar

freely in just a small area of this state and not in the rest is still being studied.

In sections where the main crop comes from the clovers in June and early July, over-wintered colonies produce more honey than packages because they have (or should have) larger populations at that time. The decision as to whether to rely on packages or over-wintered colonies rests largely on the beekeeper's knowledge as to when the main crop comes—early or late.

About Conventions: We have finished another series of State conventions of various State organizations and while still fresh in mind, we can look back to see what made them successful or disappointing. The writer has seen a good many of both kinds over the past 25 years since our State Horticultural Society is composed of State organizations of fruit growers, berry growers, nurserymen, gladiolus growers, garden club members, and the Wisconsin Beekeepers' Association.

It would appear that successful, interesting, and pleasant conventions have these qualities:

1. **An interesting and helpful program.** At a State convention most people want to hear first hand from research scientists who report on their findings in research and give the members the latest information helpful in solving their problems.

2. **Short and pleasant business meetings.** This includes the suppression of those who wish to argue and prolong the session until the members squirm in their seats. Most minor details of business can best be handled by a Board of Managers or Directors.

3. **A pleasant, interesting, and enjoyable banquet with plenty of humor.** Beekeepers seem to like stunts, such as smoker lighting, hive nailing, question and answer contests, etc.

4. **An interesting program for the Auxiliary meeting.** Keep the ladies happy and they will want to come back next year and bring their husbands. The program should not be entirely filled with items about beekeeping or honey. Flower arrangement, gardening, cooking, etc., have been desirable topics.

5. **A good welcoming committee** and a chairman who can create a pleasant atmosphere. Make the guests welcome when they arrive—many have come long distances; they are strangers and a handshake will make them feel a part of the meeting. The chairman should thank each speaker and lead in the applause.

Have you ever observed the change in the attitude of a crowd when they "let go" and applaud vigorously? It seems to relieve the tension, and the chairman who can help by starting applause when there seems to be tension may change a "dead" meeting into a lively one. Applause, therefore, is not only to thank the speaker but also to create a better atmosphere in the meeting.—H. J. Rahmlow, Madison, Wisconsin.

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SOUTH CAROLINA, Nov. 23

Weather: On November 9, our first killing frost laid low the honey plants that were in bloom. White aster was still blooming, but had amounted to very little help to the bees as we had a very dry October. There has been little or no ice in the vicinity of Clemson.

Condition of Bees: An extremely dry fall has not helped the winter stores for the bees. Lack of moisture again has caused a dearth of nectar in the blooms. In the Mexican clover section of the state, colonies are in very good condition. With the exception of this section bees are in very poor condition for winter.

Feeding will be necessary in most yards north of the Sandhill section to bring weak colonies through the winter.

Market: Honey is not moving very fast from the grocery shelf. The quality of our honey is off from the previous year. Honey dew has very likely been responsible for the off color.

Miscellaneous: I am just back from the Southern States meeting in Atlanta where we had a very pleasant and in-

formative meeting. The Biltmore Hotel in Atlanta had plenty of honey on hand to serve the honey hungry beekeepers. I didn't get to see the label on the pack they were serving from but am quite sure the honey was made from sweet clover and shipped to Georgia from the Midwest. The outgoing officers are to be commended for a good program.

Fairs: At our recent State Fair one question was outstanding coming from the beekeepers. What can I do to get rid of the worms in my bees? The number one question from non-beekeepers was: What makes the honey different colors? From these two questions a conclusion could easily be drawn that we need to do some educational work.

At the Greenville County Fair a tremendous interest was shown in the honey exhibit. The beekeepers registered for prizes given by local supply dealers. One of these prizes was a complete bee hive won by a beekeeper who possessed only one hive.—W. H. Purser, Assistant Entomologist, Clemson, S. C.

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MANITOBA, December 10

Manitoba beekeepers experienced in 1953 the largest production per hive since 1938. The total Manitoba crop is about a million pounds above that of 1952. The 1953 production of approximately four and one-half million pounds is, however, still slightly below the long time average of five million pounds.

A small reduction took place in the number of beekeepers in 1953, as the trend towards specialization, which started in 1948, continued. With the decrease in the number of small beekeepers and the increase in the number of colonies operated by the larger beekeepers, little change in number of colonies took place.

Spring weather conditions were very favorable for the establishment of package bees. One exception, however, existed in packages brought in from one area in Mississippi. These packages had a very high percentage queen loss. The number of packages brought in by truck increased over 1952 and this method of transporting bees is growing rapidly.

Wet cool weather during June threatened to give Manitoba a small honey crop, however, conditions improved favorably in July and August. The Manitoba flow normally occurs in July, but with an abundance of moisture, the 1953 flow continued into August. This was an exception and the August flow was one of the highest ever recorded, being at least 40 per cent of the total crop.

There were no areas reporting a crop failure with the poorest yields occurring in the Virden, Oak Lake, areas. The highest yields were reported in the Carman, Morden, Steinbach areas. The reason for the high production in south central Manitoba was the yield from buckwheat and sunflower. Thousands of acres of buckwheat were grown in Manitoba and resulted in a good honey flow for many beekeepers.

The large production of buckwheat honey presented somewhat of a marketing problem, however, it is expected to be disposed of before another crop. The most serious problem presenting the beekeepers with buckwheat honey was the contamination of white clover honey with a buckwheat flavor.

Generally, the quality of honey produced was good. Moisture content was excellent but there appeared to be a higher percentage of honey grading white than water white or extra white. —D. R. Robertson, Winnipeg, Man.

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ONTARIO, December 8

The Ontario Beekeepers' Association held its 74th annual convention in Toronto on Nov. 30, Dec. 1st and 2nd. Attendance nearing 150, somewhat smaller than usual, and reflecting the rather short crop of the past season. With the cash in their pocket, many beekeepers feel they cannot afford a three day stay in the city with the accompanying high costs of accommodation.

However, the lack of numbers was compensated for by the excellence of

the program on which appeared the names of well-known figures in the honey industry of both Canada and the U. S.

Mrs. Grace of the American Honey Institute is always a welcome visitor, and the versatility she displays in developing new ideas for publicizing honey is really amazing. Mr. G. H. Cale of the American Bee Journal, who with Mrs. Cale attended our convention for the first time, I believe, gave an excellent address on management for efficient and maximum production.

Honey house layout, and equipment for efficient, economical handling of honey from bee yard to final packaging was stressed by several speakers. The feeling among producers is that if honey is to hold its own in today's fiercely competitive food markets, nothing short of the most modern technique will suffice.

Much interest was evident in new pasteurizing equipment being developed by the Bee Division of the Central Experimental Farm, Ottawa, and the Apiculture Department of Ontario Agricultural College, Guelph. These are on the continuous flow principle, and consist of a complicated appearing system of filters and stainless steel tubing that probably make the cost prohibitive for any but large operators.

Honey promotion also was a lively subject, and here I would like to refer back to some material in previous notes on the work being done by Sports College in popularizing honey as a part of the training diet of athletes in various lines of sport. In passing it is worth mentioning that on the Saturday preceding the Convention, Hamilton Tiger-cats of the Big Four League, who use honey in training, won the East-West football championship from Winnipeg, 12-6. Similarly, our own home town Lacrosse team, also honey eaters, won their third straight national title in 1953.

Lloyd Percival, Executive Director of Sports College, brought up to date the work being done by his organization in proving the value of honey in athletic programs, by tests in actual athletic competition, with strict controls. Research Guide, the college's publication, which reaches coaches, trainers, and physical education leaders has a circulation of over 180,000, 90 per cent in Canada, 8 per cent in U. S., and 2 per cent in other countries. The college's broadcasts over the Canadian Broadcasting Corporation network reaches 500,000 listeners. Also the annual distribution of bulletins and booklets reaches 114,000. The college has established honey as a basic energy food with trainers and coaches throughout Canada.

Latest report from the Bureau of Statistics places the 1953 Canadian honey crop at 26,174,000 pounds, 5 million pounds less than in 1952, and the smallest since 1942. The decline was caused by smaller per colony yield, and a reduction in both beekeepers and colony numbers. Plenty of moisture at present combined with a late growing period should, other conditions being satisfactory, increase prospects for a better crop in 1954.—Allan T. Brown, Peterborough, Ontario.

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ILLINOIS, December 14

Weather: We have had wonderful fall weather except that it has been very dry. To date we are about 12 inches of rainfall below normal for the year. In early July we received about 11 inches of rainfall within seven days. This happened when our sweet clover was in full blossom. After the honey crop was ruined it remained dry until early November.

Rains are badly needed by farmers in most parts of the state. Many streams, dredge ditches, ponds, and even wells remain dry at this late date.

During the pheasant hunting season we examined some sweet clover fields that were planted this spring and are to bloom next summer. We were surprised to find the plants in good shape considering the drouth.

The Honey Crop: The crop was small in most areas of the state. We have not received a single report of an average crop anywhere. In the southern half of the state the crop was smaller as drouth conditions were more

serious in that part. We have not made our State and Federal Report on honey for this year so we cannot give this information at this time.

Honey Market: Stocks of liquid honey are getting scarce. We have tried to build us a supply to take care of our own needs until next year's crop. We found it difficult to locate honey.

Advertising: The writer attended the Wisconsin State Meeting at Fort Atkinson in October. The banquet was well attended, the program excellent.

The Dairy Industry in Wisconsin never turns down an opportunity for advertising. I can see why people often think of cheese and other dairy products when they think of Wisconsin. The speakers never gave up until they had told their story about dairy products. If we, in the honey industry would get good speakers into five times as many places as we have at the present we too could do a grand job.

A person just has to buy so much Wisconsin cheese when they go through that state. In Georgia its pecans, in Vermont its maple products. Now it just occurred to me to associate comb honey with Illinois and there we have it.—Carl E. Killion, Paris, Illinois.

* * *

NEW JERSEY, December 10

Bees: Bees are all winterized and resting comfortably, more so, perhaps than many a beekeeper in New Jersey who is already worrying about his winter and spring loss.

North Jersey apiculturists had very little fall flow to offer winter stores, or stimulus for late brood rearing. Consequently, most colonies went into winter with a smaller than usual cluster of young bees. Those few beekeepers who had the foresight to feed sugar syrup in the late fall, feel that their chances of wintering are much better than their brother beekeepers who didn't feed.

Beekeepers in the southern part of the State are expecting the worst, since there was an outbreak of E.F.B. in late summer. This weakened colonies and never allowed them to build up or gather enough nectar for winter use. Clusters in colonies headed by European resistant queens are twice as large as those in colonies that had only a mild attack of the disease.

Honey: It is too bad that there isn't more New Jersey honey for sale in stores and road stands this year; but the short crop was sold unusually early, and there was none of the crop from the previous year left. New Jersey's crop is usually small and is dumped in the fall season, so this product is seen so little by Mr. Consumer that it can never be as well known as it should be. If some enterprising New Jersey beekeeper could keep his product before the public 365 days a year, the whole honey industry would profit.

This is a far different cry from that of years ago when crops were large and sales were slow. Now New Jersey beekeepers have the sales potentiality, but very short crops.

Honey Plants: Recent rainfall coming after a dry fall, makes beekeepers optimistic about the spring honey flow, but they are dubious about the legumes. In several areas where beekeepers depend upon uncultivated sweet clover and white dutch, these plants suffered much in the dry weather and seed did not mature. Those plants growing on wasteland, and along roadsides are the only ones left to give a smattering of clover honey. The farmers mow too quickly and bees do not have a chance to harvest, but, perhaps, sumac and tulip poplar will yield for '54.

"Always optimistic, always a beekeeper".—Milton Stricker, Annandale, New Jersey.

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Bee Facts

(A Digest of Scientific Research)

Weather Factors in Honey Production

The amount of precipitation from December through February significantly affected the July honey flow in Kansas, reported Joseph O. Moffett and Ralph L. Parker. Results of their studies at the Kansas Agricultural Experiment Station showed that precipitation was the only weather factor that could be correlated with the honey flow.

The specialists also found the following conditions to be significant:

1. No association was found between nectar flows in successive seasons.
2. Abundant June rainfall was significantly related to the best 10 nectar flow years.
3. A warm April and a cool May and June were significantly related to the 10 best nectar-flow years.
4. Over 58 per cent of the nectar was stored on days when the maximum temperature was 100 degrees F. or over.

Reference: Moffett, Joseph O. & Ralph L. Parker. Relation of Weather Factors to Nectar Flow in Honey Production. Kansas Agric. Exp. Sta. Tech. Bull. 74. Sept. 1953.

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Growth Requirements of Honey Bees

The author studied the requirements of newly hatched worker bees for amino acids during their first two weeks of life. He had previously found that such young bees could develop apparently normally for at least 14 days on a diet of sucrose and casein (the principal protein of milk) at 86 degrees F. as well as they did on sucrose and bee bread.

He administered various mixtures of the 17 pure amino acids found in casein. (Amino acids are "building blocks" from which proteins are made.) These were dissolved in a solution of sucrose in tap water 4:1. No vitamins were added. The bees were weighed at seven and 14 days of age and analyzed for their nitrogen content, following removal of the digestive tract.

The following amino acids were found to be essential for relatively normal growth of the young worker bee: arginine, histidine, lysine, phenylalanine, tryptophan, leucine, isoleucine, threonine, valine, and methionine. Those not essential for normal growth are: glycine, alanine, serine, cystine, tyrosine, hydroxyproline, glutamic acid, aspartic acid, and proline.

Reference: de Groot, A. P. Amino Acid Requirements for Growth of the Honeybee (Apis Mellifica L.). Experientia 8:192 (May) 1952. Laboratory of Comparative Physiology. Univ. of Utrecht.

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How Much Sugar in Nectar?

G. R. Wykes states that bees prefer a mixture of the natural nectar sugars: sucrose, glucose and fructose, over any single one of these.

The proportion of these 3 sugars in nectar varies markedly among different plant species. Their total concentration also shows wide differences.

The results of partial nectar analyses from several flowers are reported. Some of these results are as follows;

White clover nectar contains from ca. 7 to 12 grams of glucose per 100 cc., 9 to 14 grams of fructose and 25 to 39 grams of total sugars.

Blackberry nectar contains 5 to 13 grams of glucose, 5 to 14 grams of fructose, and total sugars 15 to 45 grams.

White mustard contains 5 to 9 grams glucose, 4 to 8 grams of fructose, and total of 9 to 17 grams.

Mustard nectar had one of the lowest ratios of fructose to glucose (0.8) i.e. it contains more glucose than fructose. This may explain the ready granulation of mustard honeys. In white clover the ratio was ca. 1.2, indicating more fructose than glucose.

Reference: Wykes, G. R. The Sugar Content of Nectars. Biochem. J. 53: 294 (Jan.) 1953.

Second Glances

C.M. Isaacson

Giving honey for Christmas gifts is an acceptable idea—many beekeepers have practiced this for years, both themselves and by suggesting it to their customers. If one can persuade the manager to allot the space, a display in a store at the proper time should create many sales (page 713). But (I hope a very mild protest may be pardoned) let's not push it **too** hard at the Christmas season and add to the all too common commercialization that takes so much out of the real meaning of this Day.

Careful attention to essentials is evident in Mr. Holzberlein's description of his honey house (page 714). It is true that the extracting room is the part that should be given primary attention, and sufficient storage space (if it is possible to have "sufficient") is surely an aim to work towards. Precautions to lessen the danger of fire are well worth while always; while the fourth point mentioned arrangement to obtain efficiency of operation adds both to economy and comfort of the work. Mr. Holzberlein has planned well and provided effectively for the basic needs. There is one point that is not quite clear, however—as to how filled cans of honey are taken from the basement. Is there an outside door at ground level lower on the hillside, or is some sort of elevator used?

Sulfa compounds and antibiotics are replacing burning slowly, but surely as a means of combatting disease in honey bees. Properly used—and that cannot be emphasized too strongly—almost amazing results can be obtained by the use of sulfathiazole in treating AFB; and both streptomycin and terramycin have shown much promise in fighting the renewed onslaught of E.F.B. the past several years. To summarize Prof. Eckert's conclusions, one might make two points—that disease can be **cured** (especially in the case of A.F.B.) and that burning is no longer necessary as an arbitrary control method, although in certain cases it may be preferable—or in the case of carelessness by the beekeeper, a necessity. But let us walk carefully in treating, tempering enthusiasm with common sense, or much harm can result (page 718).

Many types of hive lifters have been designed, as Mr. leMaistre mentions, but the one he describes and illustrates seems to have the advantage of being both light and strong. The comparatively large rubber tires should increase its practicability also, in that they enable heavy loads to be moved about much more easily (page 724).

Quality of crop as well as amount is directly influenced by the pollination activities of honey bees. The article beginning on page 726 points out that not only was the total number of melons in the test plots greatly increased when honey bees were used but also the sweetness and shape of the fruit were much better. We may add this to the growing list of evidence backing up beekeepers' claims as to the pollination value of bees.

Work is a basic ingredient of success everywhere—as R. B. Willson's account of German recovery emphasizes (page 727). Mr. Willson found much to admire there, as he also did in Italy, France, and other European countries. His reception everywhere showed once more, as he mentions, the world wide "clanship" of beekeepers, whatever their language, race, or creed.

To avoid crystallization in packaged honey, heating to a temperature above 160 degrees (with subsequent rapid cooling to avoid heat damage) and a closed-in system of packaging are the important points, says Dr. Dyce (page 731). Moisture content and type of honey also have their influence—the latter factor being quite generally known. So if we must sell clear, uncrystallized honey, these points should be kept in mind.

More young beekeepers are needed, J. I. Hambleton told the Southern States Beekeeping Federation meeting in Atlanta, Georgia (page 749). That is a seemingly simple statement picked out of the account of the meeting, but it is one we all need to remember. Let's encourage young people in their interest in bees at all times. We will all benefit in many ways.

How Will New Insecticide Affect Bees?

By Dr. J. E. Eckert, University of California, Davis, Calif.

"SYSTOX" is one of a group of insecticides included in the new technique of controlling insects. Most pesticides exert their killing powers either through contact, or through fumigant action or as stomach poisons. Most of these chemicals have to strike the insects or stick to the leaves of plants, or get into the nectar or on pollen and kill when the plant parts are eaten.

"Systox" is the new type of systemic poison in that it is readily absorbed through the seed or roots of plants or through the foliage and is translocated to all parts of the plant by the vascular system. When sucking insects, such as aphids or red spiders perforate the tissues and suck up the plant juices, they are killed.

Reports from Europe indicated that "Systox" appeared in the nectar when it was applied to a blooming plant. Apparently, the Europeans gave the plant a very heavy dose of the chemical. I have heard of one other reference to its recovery from nectar, but under practical conditions in the field it does not seem to cause harm to bees in such proportions that it need be kept from blooming plants. In fact, it was applied to several thousand acres of cotton in California this year, as well as last year, and only one verbal report was received which indicated any material damage.

In our one trial in 1953, in which Charles Reed and other beekeepers of the Valley Pollination Service cooperated with the offices of the County Agricultural Commissioner and Farm Advisor in Kern County, "Systox" was flown over two groups of hives placed in the cotton in a way that double the amount of spray was applied directly over the hives. While some dead bees were found in the rows of cotton and before the hives, the results were considered insufficient to prevent its use as a pesticide on cotton when bees were present in adjacent fields, especially if the applications are made late in the afternoon when few bees are working the plants.

Such tests as this should not be considered conclusive because it cannot be determined how many bees come in contact with the spray as most of them are under the protection of the hive and many of the field bees may be working in other fields or do not come in contact with the poison.

In our laboratory, we have found that bees are killed on contact and when the chemical is taken internally with sugar syrup. The median lethal dose or the amount needed to kill 50 per cent of the bees, appears to be 1.18 micrograms* of "Systox". This compares with a M/D-50 of 4.6 for DDT, 22.0 for toxaphene and 0.07 for parathion.

Normally, only six ounces of "Systox" are used to the acre of cotton, so one can see that it is applied in very dilute form. So, while it may have been recovered from the nectar of one plant when applied in a rather heavy dosage, commercial practice in this country does not seem to hold that threat.

The administrative agencies are going slow in releasing this chemical for general use and so far have confined its use mainly to fiber crops. We do not know what effect all of these chemicals will have on the human system if they are obtained in minute quantities from a number of fruits or vegetables.

Honey bees have a control of their own to prevent chemicals from being introduced into the honey of their hives. Those chemicals, which are being highly toxic to bees, usually kill the field bees with contaminated nectar before they get back to their hives; or, in concentrating the nectar, the house bees may be killed.

This is not true of pollen, however, since this can become contaminated and carried back to the hive without affecting the carrier in many cases. This poisoned pollen will kill the nurse bees as they elaborate it into brood food. This second handling and conversion protects the queen and many of the larvae from poisoning and thus protects the colony. The queen usually is the last to die in the hive because the food that is prepared for her must be free enough from poison to be unharmful to the nurse bees.

* A microgram is one-millionth of a gram.

A Talk to Beekeepers

With Special Attention to Beginners

M. J. Deyell

M. J. Deyell

The New Year

IT IS HERE and the question is, what are we going to do with it? Are we going to go on making some of the same mistakes in beekeeping that we have made during the years, or will we profit from our past mistakes and try to make the coming year the best ever in beekeeping? We have a chance to do the latter. Someone has said the only person who never makes any mistakes is the person who never tries to do anything. Let's not be in this class. Let's try to accomplish something in beekeeping, even though we do make an occasional mistake.

A Word about Getting Started

The late A. I. Root got started in beekeeping by offering one of his workmen a dollar to bring back a swarm that was passing over the shop. At that time Mr. Root was a jeweler.

The man brought back the bees in a box. Mr. Root, not knowing anything about bees, realized then and there that he was in the bee business. He did the sensible thing by making a trip to Cleveland, Ohio, to visit the public library to see what he could find on honey bees. He found Langstroth's book.

We quote the following from Mr. Root's writing: "What a gold mine that book seemed to me as I looked it over on my journey home! Never was romance so enticing — no, not even Robinson Crusoe; and, best of all, right in my own home I could live out and verify all the wonderful things told therein. Late as it was, I yet made an observation hive and raised queens from worker eggs before winter, and wound up by purchasing a queen from Mr. Langstroth for $20.00. I should, in fact, have wound up the whole business, queen and all, most effectually, had it not been for some timely advice toward Christmas, from a plain practical farmer near by. With his assistance, and by the purchase of some more bees, I brought all safely through the winter."

We can learn from Mr. Root's experience that information on beekeeping should be sought from a reliable source.

How I Got Started with Bees

While I was working in the factory of The A. I. Root Company, one day the foreman of the Root Company apiaries passed through the room in which I was helping to pack hives, and asked me if I would like to work in the beeyards that spring. I told him I would and a few days later I was out among the bees, with bee veil, smoker, and hive tool. The bees fascinated me from the very first. A little later on, during June, July, and August, I was trying my hand at rearing queen bees, operating about 200 nucs. I became so intrigued with my work that I could hardly take time out to eat or sleep. While I am still enthusiastic about beekeeping, I try not to let bees interfere with my meals. I began to realize that I had caught the "bee fever" and I have never gotten over it.

Learn by Doing

WHILE IT IS quite necessary to read good bee books and bee journals, also contact successful beekeepers and attend beekeepers' meetings, one could read beekeeping literature from now until doom's-day, and never actually

learn how to handle bees successfully. The same is true with any other line of business. We might read all the books in the library on operating an automobile, but we never actually learn how to drive one until we get into the driver's seat. Theory and practice go hand in hand in learning beekeeping.

A Short Chapter from My Michigan Experience

I have referred to this occasionally in my talks during the years, and some have asked me why I do not write the entire story for Gleanings. I have at times felt this urge coming on but have never settled down to writing the story. Possibly I will some day.

After I had worked in The A. I. Root Company's apiaries for four years during summers and in the factory, also selling "Airline" honey during winters, I became somewhat restless and wanted to get into commercial beekeeping on my own. This opportunity presented itself in the spring of 1917 when I read an ad in Gleanings offering between 200 and 300 hives of bees for sale near Copemish, Michigan. A friend, learning of my desire to get into the honey producing business, loaned me a few thousand dollars, as I had no surplus cash at that time. He apparently had some faith in my ability as a beekeeper.

Early in May I made a trip to Northern Michigan to look at the bees. The beekeeper offering them for sale was a section comb honey producer, one of the best in Michigan, Samuel Coulthaid. Some of you older Michiganders may remember him. He used eight-frame hives and was in the raspberry region about 37 miles south of Traverse City.

I looked the bees over and bought them, assuming that he would permit me to leave them on that location, at least during that season. After I had made a down payment he said the bees would have to be moved.

Well, there I was, in a strange country not knowing a soul, with 210 colonies of bees on my hands and no place to put them. I will never forget the strange feeling that came over me that night at the hotel, wondering what I would do the next day about finding a location for the bees. It so happened there was a beekeeper at the edge of Copemish, a man past middle age, who operated 80 hives of bees. He proved to be a friend in need. When I told him the following morning about my predicament he assured me that he would help me find a location for the bees, so we drove out about six miles to see a farmer who was interested in having bees on his place.

This farmer had an unoccupied dwelling house and other buildings, also an old orchard on the southeast corner of a woods, on the back part of his farm. This appeared to be an ideal location for an apiary, sheltered from the prevailing north and west winds.

I PLANNED to return to Medina immediately to make arrangements for moving some household effects to northern Michigan. However, after learning that the raspberry flow started from the 10th to the 15th of June in that area, I decided it would be advisable to move the bees to the new location before returning to Medina.

The bees were near a railroad. The man from whom I bought the bees had some top and entrance screens. I arranged to move the bees eight miles by railroad and six miles by wagons with hayracks. The 210 colonies were loaded onto a stock car in the forenoon, and the train reached Copemish about three o'clock in the afternoon. Four farmers with wagons met the car of bees and by sundown we had the bees in the new location. After pulling the entrance screens and putting on hive covers, I hopped the train that night for home.

On reaching Medina, I ordered needed bee supplies and made arrangements to return to northern Michigan with my wife, shipping enough goods to set up housekeeping in the empty dwelling house on the farm where the bees were located.

We arrived in Michigan the latter part of May. As the major honey flow from wild raspberries was due to start about the middle of June we had an enormous amount of work to do in a relatively short time. The dwelling house had to be made livable, an old woodshed was converted into a honey house and the bee supplies, between

Bees can be kept quite close to a dwelling house—if care is taken to manipulate colonies only during warm weather when bees are working well. The bee yard above belongs to Charles V. Cody, of Old Mystic, Conn.

four and five hundred deep supers with frames, also comb foundation, had to be hauled six miles from Copemish and assembled.

I had purchased a model T Ford, a 1912 model with brass radiator. It was five years old, but in good condition. I sold the body and had a blacksmith mechanic order and put on a truck body. Twenty-six loads of bee supplies were hauled from Copemish to my Michigan home.

We had no electricity so had to use coal oil lamps. We used our front living room for a workshop part of the time. Many a night my wife and I worked until 11 or 12 o'clock putting full sheets of foundation into frames, then put into hive bodies that had been piled up temporarily, ready to put on the bees the following morning. The honey flow had started. Supers had to be put on or the bees would go to the woods. It was a thrilling experience, but we did manage to keep ahead of the bees.

During a raspberry honey flow, bees work from early morning till late in the evening. I have seen bees coming from the fields at dusk, heavily laden with nectar, dropping on the alighting boards and walking slowly into the hive entrances.

I made some mistakes that first season and in following talks I want to tell about them in order that you beginners may avoid similar mistakes.

As a matter of fact, at that time I thought I knew a great deal about beekeeping. I did know a few things, but had plenty to learn. I have said that if I knew as much about beekeeping now as I thought I knew then, I would be a a good beekeeper.

A Word to Beginners

THERE ARE thousands of beginner beekeepers who take up beekeeping each season. It is well that such is the case because our industry needs more beginners.

Those of you who are planning to get some bees and equipment this spring should attend bee meetings, county, state, and national, contact successful beekeepers in your community, read good bee books and bee journals and later on, after getting the bees, you will have a chance to put into practice some of the theories learned.

Sometimes beginners start with too many hives of bees, more than they can manage intelligently. Just recently a retired business man interested in bees came to our office wanting to buy 100 hives of bees and equipment for his summer home. He knew nothing about bees. When I suggested a lesser

number to begin with he was not inclined to follow my suggestion. From one to five hives the first season will give a beginner the needed experience. It is a comparatively easy matter to increase the size of one's apiary later on. A beginner should study a bee supply catalog in order to have a better understanding of how hives and other appliances are made and used.

Ways to Get Started

Many a beginner has started with a swarm of bees captured in his back yard in the branch of a tree. A large swarm put into a hive at the beginning of a major honey flow is likely to store some surplus honey the same season. A small swarm is not likely to store any surplus that season but will usually build up in time to store enough honey for winter food.

It is possible to purchase full colonies of bees in hives containing combs with honey, brood, and bees. One should make sure that the hives are of standard dimensions and the combs of good quality. By that I mean that the combs should consist mainly of worker cells and not large patches of drone cells. It is important also that bees be accompanied with a certificate of inspection from an authorized bee inspector, stating that they are free from disease. Occasionally, bees sold at public sales are not inspected and if they happen to be diseased they can cause a lot of trouble.

The package bee method of starting colonies of bees seems to be preferable. It is possible, by installing packages of bees quite early in the spring, to develop colonies sufficiently populous in bees to store a crop of surplus honey the same season. That is one way of getting quick returns on an investment.

Bee equipment should be ordered quite early so that hives can be assembled in readiness for the bees when they are received a little later on.

Beekeepers, Let's Look Forward Not Back

By E. H. Adee, Sutherland, Nebraska

Chairman, Membership Committee, American Beekeeping Federation

AS WE GREET the dawn of a new year let us pause and reflect on what we as beekeepers want for the future and the part we expect to take in it. Too many beekeepers would like to see a lot of things accomplished but do not want to put forth any effort or money to bring about what they desire.

Beekeepers over the country nearly all fall into two classes, those with foresight and those with hindsight. The latter is by far the largest class as it requires much less effort to pose as a sage. It is easy to look back and tell how a thing should have been done without having your idea put to a test or assuming any responsibility for its working.

Most progress in the world today is made by those who are looking ahead. They have to chart a plan of action and then go to a lot of hard work and expense to put that plan into effect. They may make use of what has happened in the past but they do not stop there. They desire progress and hence align themselves with others and work for those things necessary to bring progress about.

With the New Year ahead of them the beekeepers of the country can well resolve that the year 1954 will be a year of real progress for the industry. This can be accomplished by supporting all of the organizations that have in the past worked actively for the beekeepers.

The American Beekeeping Federation is run by and for beekeepers, and all beekeepers can be members and have a voice in its administration. So why not look to the future and progress through an active membership in this organization. Let us forget about looking backward and all look forward. All of us working toward a common goal, each of us giving some time and a little money for dues can be a force that will not be defeated. It is the number of supporters of any organization that determines the real power, efficiency, and effectiveness of that organization.

Let us say, "Hail to the New Year and a greatly enlarged Federation". Resolve to be a member now. Send your dues to the American Beekeeping Federation, Osseo, Wis.

Just News

The **North Carolina State Beekeepers' Association** will hold its annual spring meeting in Charlotte, N. C., on Tuesday, February 2. The date of the meeting has been advanced by about a month in order to obtain some of the speakers from the Baltimore meeting of the Federation. The place of the meeting will be announced later, or may be determined by writing to the County Agent, Mecklenburg County, Charlotte, N. C. — Eugene B. Finch, Sec.-Treas.

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The **North Arkansas Beekeepers' Association** elected their officers for the coming year, 1954 on Nov. 20 in the Arkansas Western Gas Hospitality Room in Harrison. Mrs. Mildred Shaw reported her visit to the office of GLEANINGS IN BEE CULTURE in Medina, Ohio.

The next meeting will be a party at the home of Mr. and Mrs. Guy Shaw, 506 N. Roland, Harrison, Arkansas on January 22, at 7:30 P.M.

Deputy Inspector, Ray Langston offers a colony of bees to anyone that will bring the most members into the North Arkansas and the Arkansas State Beekeepers' Association by May 15. The Smith Hardware adds two complete supers to the prize. The North Arkansas Beekeepers' Association's dues are $1.00 per family and the Arkansas State Beekeepers' Association's dues are $1.50 per person. —Mrs. Gladys McKay, Sec.

* * *

Middlesex County Beekeepers' Association (Mass.) will hold its next regular meeting on Jan. 30, at the State of Massachusetts Experimental Field Station in Waltham, Massachusetts, starting with a buffet dinner at 6:30 P.M. There will be a short business meeting followed by a Question and Answer period with our panel of expert beekeepers. Also there will be a colored sound moving picture on beekeeping. Mr. John Proctor, who was appointed Chairman of the Bee Exhibit for the 83rd Annual "Spring Flower Show" of the Massachusetts Horticultural Society, will start to formulate plans. At the Christmas meeting last month each member and guest received a gift, and an old fashioned Christmas Carol Sing was enjoyed by all present. The music was furnished by some of the musical members of the Association.—John H. Furber, Sec.-Treas.

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The **Westchester County Beekeepers' Association** will hold its next meeting at 2:30 P.M. Sunday Jan. 17th at The Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. The meeting will be a short one at which time the election of officers for the coming year will be announced. We will then retire across the street to the Coronet Tea Room and have our 12th annual banquet.—Carlton E. Slater, Publicity.

* * *

Apiary Inspection in Florida for the fiscal year ending June 30, 1953, according to H. S. Foster, Chief Apiary Inspector, showed 92,267 colonies in 3,259 apiaries in 50 counties inspected. The percentage of disease was .0149 per cent. The total cost of apiary inspection was $31,459.87, or an average per colony inspection cost of approximately 34 cents.

* * *

A **California state civil service examination** for Deputy State Bee Inspector has been scheduled, the State Personnel Board announces. Applications will be accepted by the board's Sacramento office, 1015 L Street, until January 8. Deputy state bee inspectors earn $295 to $358 a month. They administer and enforce laws pertaining to apiary inspection.

Applicants require one year in the enforcement or administration of apiary inspection laws or one year in commercial beekeeping. Residence in California for one year prior to the examination is required. Additional information and application forms are available at the personnel board in Sacramento, San Francisco and Los Angeles.

* * *

Florida Plans a Honey Department at State Fair.—Seven classes of honey exhibits will be open to Florida bee-

keepers at their 49th annual State Fair, Feb. 2 to 13, 1954, at Tampa. This honey show is under the auspices of the Florida State Beekeepers' Association.

Four of the classes will be grouped under "Cooking Contest" and are held under the sponsorship of the Tampa Bay Beekeepers' Auxiliary, who are cooperating with the state association. Included in this group will be honey breads, cakes, cookies, and confections.

* * *

The **Southern Tier Beekeepers' Association** will hold its next meeting at 8 P.M. Tuesday, January 19th at the C. L. Reynolds Radio and Appliance Salesroom, 25-27 Sterges St., Binghamton, N. Y. Light lunch will be served. A moving picture "Bees and Honey" will be shown. This picture is well worth seeing, so every member should attend. Also at this time, membership dues are needed.

At the Nov. 17th meeting, the following officers were elected for the coming year. President, Rubin Rood, 14 Decator St., Binghamton, N. Y.; Vice-president, A. E. Bolster, 6 Franklin Ave., Hillcrest; Sec. and Treas., H. B. Webb, Box 18, Port Crane, N. Y.

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Texas Radio Program Gets Results—More than 200 listeners of radio station WOAI requested copies of "Old Favorite Honey Recipes" offered recently by D. C. Babcock of San Antonio, Texas, on a 30-minute program advertising National Honey Week. The program and offer of free recipe books was sponsored by the Alamo National Bank.

Continuing to work hard on Honey Week advertising, the Texas Beekeepers' Association sponsored a series of window displays as a part of their publicity campaign. The group prepared two fine displays in San Antonio and Pearsall, and one in Ft. Worth and Dallas.

* * *

New Honey Plant Book Available—To help beekeepers make quicker and more accurate identifications of legumes, a new illustrated guide has been written by Herbert B. Hartwik, professor of field crops at Cornell University.

In "Legume Culture and Picture Identification—Seedling to Maturity," Professor Hartwig shows and describes widely grown species of legumes in all stages of development including the very early seedling stage. Recognizing the beekeepers' need to identify honey plants before the blooming stage, in order to find new bee locations, Professor Hartwig originated the seedling identification material, which is not found in any other guide.

Close-up sketches show distinguishing characteristics of seeds, flowers, and fruiting parts. Detailed information is presented for birdsfoot trefoil, clovers, vetch, and many other honey plants.

The honey plants are also classified according to such practical considerations as tolerance to various weather extremes and soil conditions, speed in becoming established, and the number of years the plants live.

This new 42-page, lithographed book can be purchased for $1.00 directly from the publisher, Marion S. Hartwig, 109 Worth Street, Ithaca, N. Y.

* * *

New Bulletin on Honey—"Honey. . . Some Ways to Use It", Home and Garden Bulletin No. 37, is a new U. S. Dept. of Agriculture publication that supersedes leaflet No. 113, "Honey and Some of Its Uses."

Besides including recipes, the new booklet gives instructions on the care and handling of honey in the home, types of honey, and notes on flavors and color.

Copies of this 16-page leaflet can be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

* * *

C. H. Pease, Canaan, Connecticut, died Dec. 6, following a brief illness, at the age of 86. Mr. Pease had many interests. Early in life he was a printer. He kept bees for a number of years and wrote a book, "Backlot Beekeeping". During the years he wrote a number of articles that appeared in GLEANINGS. He was an authority on wild life, a taxidermist, and a musician, having organized a number of bands in his early days. He leaves a wife, a daughter, and a grandchild.

* * *

Jay Smith, well-known beekeeper and queen breeder, formerly of Vin-

cennes, Indiana, passed on at his home in Fort Myers, Florida. For a number of years Mr. Smith wrote a humorous page for GLEANINGS entitled, "The Jay". His books on queen rearing are well known. Readers of bee journals will always remember his queen advertisement with his picture showing a beard of bees. He was known internationally and sold queen bees to beekeepers in many foreign countries. Surviving are his wife Ruth, three sons, Huber Smith of Fort Meyers, Jay Alfred Smith, Lombard, Illinois, and Manley Smith, Vincennes, Indiana.

* * *

Adam Bodenschatz, Lemont, Illinois, passed away December 13. He was a well known beekeeper in Illinois and a credit to our industry.

* * *

Program of the 1954 Convention of the American Beekeeping Federation

The Maryland State Beekeepers' Association will be host to this convention that will be held at the Lord Baltimore Hotel, Baltimore, Maryland, January 27 through 29. Whenever possible, Gleanings urges all of its readers to attend this important meeting. Be sure to make your hotel reservations early.

There will be a preconvention meeting of the Executive Committee and the Board of Directors of the Apiary Inspectors of America at College Park on Monday and Tuesday, January 25 and 26.

Wednesday, January 27

8:00 a.m. Registration
9:30 a.m. Call to Order
Invocation—Rev. John Baden, St. James Episcopal Church, Monkton
Address of Welcome—Dr. H. C. Byrd. President, University of Maryland, College Park
Response to Address of Welcome
President's Annual Address—H. A. Schaefer
Keynote Speech—James I. Hambleton, Director, U. S. Bee Culture Laboratory
1:30 p.m. Nosema—C. L. Farrar
2:10 p.m. American Foulbrood—Dr. T. A. Gochnauer
2:50 p.m. European Foulbrood—Joseph O. Moffett
3:30 p.m. Bee Breeding—Leslie H. Little
8:00 p.m. 500 Club—Standing Committees

Thursday, January 28

8:30 a.m. Honey Research—Dr. J. W. White, Jr.
9:10 a.m. Role of the Extension Specialist—George J. Abrams, Chairman, University of Maryland
Audience Participation in the Panel — John D Haynie, Clark, W. A. Stephen
10:00 a.m. Bus trip to points of interest; Fort McHenry, etc.
10:40 a.m. Pollination and Effect of Insecticides—Clarence Benson, Chairman
Audience Participation in the Panel—Wilber C. Wahl, Clare D. Lloyd
1:30 p.m. Amateur Program—George J. Abrams, Chairman University of Maryland
History of American Beekeeping—George Rea
Wintering—C. L. Farrar
Swarm Control—Ed Anderson
Chunk Honey Production
Bee Stings and Allergies
7:30 p.m. Annual Banquet—F. B. Paddock, Toastmaster
Address
Entertainment—Balto. & Ohio Choral Group

Friday, January 29

8:30 a.m. Report: The American Honey Institute—Mrs. Harriett Grace
8:50 a.m. Report: Honey Industry Council of America—Alan Root
9:10 a.m. Report: Southern States Beekeeping Federation—W. A. Stephen
9:30 a.m. Report: Bee Industries Association—Gordon Frater
9:50 a.m. Report: The National Honey Packers & Dealers Association—R. B. Willson
10:10 a.m. Report: Apiary Inspectors of America
10:30 a.m. Report: Resolution Committee
Trip through McCormick and Company's spice plant—two hours
Election of Officers
1:30 p.m. U.S.D.A. Program—S. R. Smith
2:10 p.m. Honey Promotion—S. J. Watkins, Chester Freeman

* * *

50th Annual Winter Meeting of the Pennsylvania State Beekeepers' Asso. State Farm Show Bldg., Harrisburg, Room E—Second Floor—Main Show Building

Tuesday morning, Jan. 12, 1954 9:30-11:30

Chairman: Paul S. Ziegler, President, Bethel, Pa.
Greetings of Welcome—Hon. Miles Horst, Secretary of Agriculture, Harrisburg, Pa.
Report of Inspection Work for 1953—Harry B. Kirk, Senior Entomologist, Bureau of Plant Industry, Harrisburg, Pa.
Research Work at the College in Bee Diseases—Prof. E. J. Anderson, In charge of Research in Apiculture, State College.
Factors of a Honey Crop—Prof. E. C. Martin, Asst. Professor of Apiculture, Michigan State College, East Lansing, Mich.

Tuesday Afternoon, 1:30 to 3:30

Report of Secretary-Treasurer — H. M. Snavely, Neffsville, Pa.
President's Address—Paul S. Ziegler, Bethel, Pa.
Election of Officers
Report of Annual Short Course at the College—A. R. Dean, Pittsburgh, Pa.
Learning Beekeeping Through 4-H Bee Club Work—Miss Anna Ressler, Myerstown, Pa.

Tuesday Evening
Annual Beekeepers' Banquet
Turkey Dinner—$1.50 - at 6:30
Colonial Park Evangelical-Reformed Church, Three miles east of Harrisburg on north side of U.S. 22 Highway. Watch for Sign at the Church!

Toastmaster—A. R. Dean, Pittsburgh, Pa.
Special Vocal Music—Ladies Quartet, Messiah College, Grantham, Pa.

Motion Pictures

Wednesday Morning, 8:30 to 11:30

Reports of Committees
Judging Apiary Products—Prof. E. C. Martin, East Lansing, Michigan.
Extension Work in Pennsylvania—W. W. Clarke, Jr., Extension Apiarist, State College, Pa.
Marketing Program for 1954—Paul Cummins, Conshohocken, Pa.

Wednesday Afternoon, 1:30

Round Table Discussion on Bee Inspection Work—Led by Jesse Posey, Muddy Creek Forks, Pa.
Marketing Honey—Prof. Edwin J. Anderson, State College, Pa.
Care of Wax Crop—Merle P. Fisher, Granville, Pa.
Greetings from Visiting Beekeepers

* * *

FARM AND HOME WEEK
University of Minnesota, University Farm, St. Paul, Minnesota
Beekeeping

Tuesday, January 12, 1954

1:45 p.m. Introduction to Beekeeping M. H. Haydak
2:45 p.m. Starting Right with Bees C. D. Floyd
3:45 p.m. Beekeeping Problems Discussion Panel

Wednesday, January 13, 1954

9:00 a.m. The Life of the Honeybee M. H. Haydak
10:00 a.m. Honey as Food J. Leichsenring
1:45 p.m. Food of Bees M. H. Haydak
2:45 p.m. The Value of Honeybees in Pollination B. A. Haws
3:45 p.m. Beekeeping is My Hobby Neil G. Barry (beekeeper, Minneapolis, Minn.)

Thursday, January 14, 1954

9:00 a.m. Preparing Colonies for Honeyflow M. H. Haydak
10:00 a.m. Honey Harvesting and Marketing C. D. Floyd
1:45 p.m. What Should We Know About the Queens M. H. Haydak
2:45 p.m. Late Summer Management and Wntering C. D. Floyd
3:45 p.m. Beekeeping Problems Discussion Panel

Friday, January 15, 1953

9:00 a.m. Newer Knowledge of Nosema Disease T. A. Gochnauer
10:00 a.m. The Beekeeper and the State T.L. Aamodt
1:45 p.m. Detection and Control of Brood Diseases T. A. Gochnauer
2:45 p.m. Film "The Honeymakers"
3:45 p.m. Beekeeping Problems

* * *

University of Illinois Farm & Home Week Beekeeping Program

Tuesday, February 2, 1954

9:00 A Year in Beekeeping
10:00 The Tools of the Honey Bee
11:00 The Nature of Honey and Its Care
1:00 Essentials of Good Beekeeping Equipment
2:00 Honeyhouse Demonstrations

Wednesday, February 3, 1954

8:15 How Honey is Marketed
9:00 What Race and Strains of Bees Shall We Use
9:45 How I Would Start in Beekeeping
10:30 Impressions from the National Meetings
11:00 Fall and Winter Management of Bees
1:00 Spring and Summer Management for Production of Extracted Honey
1:45 Management for Section and Bulk Comb Honey Production
2:30 Pollination and Seed Production Service

Apiary Inspector's Conference

Wednesday Evening, February, 3, 1954

7:00 Adult Bee Disease
7:45 Diagnosing Brood Diseases
8:30 Apiary Inspection and Disease Control
9:15 General Discussion

The above is a part of the general Farm and Home program on various subjects related to farming and homemaking offered by the College of Agriculture of the University of Illinois, February 1-4, 1954. Speakers include G. H. Cale, Jr. of Dadant & Sons, Hamilton, Illinois; Carl E. Killion, State Apiary Inspector; Eugene Killion of Paris, Illinois; and V. G. Milum, University of Illinois apiculturist. There are no registration fees. Those wishing to stay overnight can find plenty of room accommodations. If interested and you do not receive a program by January 15, write The Information Office, College of Agriculture, Urbana, Illinois.

* * *

Beekeepers' Program
Tuesday, February 2, 1954
Room 102, Fairchild Hall, Kansas State College, Manhattan
Dell E. Gates, Extension Entomologist, K.S.C. presiding

9:00 a.m. Apiary Inspection Report R. L. Parker, State Apiarist, Kansas, Entomological Commission, Manhattan, Kansas.
9:15 a.m. Apiary Location R. J. Walstrom, Extension Entomologist, Iowa State College, Ames, Iowa.
10:00 a.m. Honey Marketing G. H. Cale, Editor, American Bee Journal, Hamilton, Illinois.
10:45 a.m. Package Bees Vs. Equal Spring Division—R. L. Parker Professor of Apiculture, K.S.C.
11:15 a.m. Lunch

R. L. Parker, presiding

1:15 p.m. Colony Management Throughout the Year—R. J. Walstrom
2:15 p.m. Nosema Disease—G. H. Cale
3:00 p.m. Round Table Discussion Leaders : R. L. Parker, R. J. Walstrom, G. H. Cale.

* * *

Program New Jersey Beekeepers' Association Meeting

Thursday, January 28, 1954

Y. W. C. A., Hanover St., Trenton, N. J.
E. W. Sutvan, President, Laurel Springs, N. J., presiding

9:30-10:00 "Get Acquainted" Period
10:00 a.m. President's Remarks — E. W. Sutvan, Laurel Springs N. J.
Report of Secretary-Treasurer Milton H. Stricker, Annandale.
Report of Officers and Committees
"Stump the Experts"—Rudolph Patzig, Bedminster, N. J., Moderator

(Continued on page 60)

American Honey Institute News Notes

By Harriett M. Grace, Director

Commercial State Bank Building, Madison 3, Wisconsin

MAY YOUR NEW YEAR be filled with Joy and Sweetness!

Americans, lucky Americans, have the right to many long-standing freedoms denied less fortunate citizens of other countries—the right to worship however they wish, the right to speak their minds freely, the right to disagree in public, the right to praise their public as they see fit. But there is one right which has come to them just recently, and which they act upon as a nation—the right to lead.

America inherited this right to lead other nations because of its superior natural resources, its position in power politics, its high and continually rising standard of living, and its masterful Constitution and Bill of Rights, which forges the individual into a powerful unit.

There are standards for judging this right of leadership in industry, too. In a recent issue of a merchandising magazine Personal Products Corporation states them clearly in these few sentences:

"By these signs will you know the true leader of an industry:

"1-The continued demonstrations of greater imagination and greater courage.

"2-Doing first the new, the daring, the more progressive, the more intelligent.

"3-Exploring first the unexplored. . . looking farther. . .searching wider . . .reaching higher. . .to accomplish improvement.

"4-Acting at all times in cooperation with their trade partners to the common good of all.

All these are the signs of a leader earning the right to industry leadership".

By these standards can the honey industry judge itself, always a worthwhile task at the end of an old year and the beginning of the new. Do we lead or do we follow in our particular phase of the food field? Do we have the **right** to lead? Do we measure up to the standards of leadership?

The smallness of the honey industry itself makes it impossible to compare it volume for volume with other industries. But it is very possible to size ourselves up against the yardstick presented above, to find out whether we have the "right" of leadership, to see whether we qualify.

We need the courage to dare, to explore, to imagine, to cooperate. We need to recognize what needs to be done, but what's more to have the will to do it. We need—and this is the point the American Honey Institute stresses most—to cooperate with our "trade partners".

"Trade partners" is a magnificant way of putting it. This recognizes that the days of cut throat, cut-price competition have gone with the flapper era. But cooperation with trade partners does not mean a return to the idea of fixed, high level prices, or monopoly markets. By no means.

IT MEANS that each industry knows that good competition is good business, and it is a "partner" with its competitors in the sense that all want to create this healthy climate of fair competition.

That is the spirit of America. That is the spirit that has permeated the honey industry as far back as the American Honey Institute can trace it. To shut out competition would be economic suicide; we want rather to vie with our competitors on a fair basis and to excel because of our honest efforts to improve.

It is too easy to shuttle abstract thoughts such as these into the backs of our minds in favor of more practical ideas. But think of them we must. It is with such abstractions for a foundation that we will be able to build a practical and profitable honey industry.

And now, when last year's honey crop is a memory and new year's is a daydream, is the time to ponder on them. Let these four signs of leadership be your guide.

Asked & Answered

Equalizing Hive Population When Dividing

Question: On page 111 of the February, 1951 Gleanings, in the article "Requeening Without Dequeening" it is stated that some beekeepers set the food chamber with honey, brood, and bees, off of the parent stand to eventually raise its own queen. I can see how young bees just having emerged from brood would consider the new location of the food chamber as home, but how does one get the adult bees from the parent hive to stay at the new location of the food chamber, at least long enough to raise the brood? I should think that after being moved, the adult bees would just return home and leave the brood.—Herbert Zobrist, Washington.

Answer: Concerning the handling of the food chamber in order to bring about requeening without dequeening, this manipulation is supposed to be performed at the beginning of a major honey flow, at which time the weather should be sufficiently warm to enable the bees left in the hive set aside to properly care for the brood. When a division of this kind is made, it is customary, as a rule, to shake two or three combs containing young bees from the hive left on the parent stand, into the hive set aside in order to strengthen the hive on the new stand. It is a fact that a large percentage of the old adult bees will return to the parent stand.

* * *

Ants Gather on Inner Covers

Question: I would like to know how to get rid of little brown ants that get up on the inner cover but do not seem to get in the other part of the hive.—Robert Curtis, Ohio.

Answer: We suggest that you try removing the center block covering the hole in the middle of the inner cover, in order to permit the bees to circulate in the space between the outer and the inner cover. If you do this, you are likely to find that the bees will drive the ants out of the hive, at least, that has been our experience.

* * *

Amount of Syrup to Equal a Pound of Honey

Question: When we make up sugar syrup, each quart contains about four standard cups of sugar. How much honey will this be the equivalent of? About what per cent of a standard comb will be filled from one quart of syrup.—Wm. Fry, Pa.

Answer: So far as we can determine, the amount of sugar syrup, by weight, stored in the combs from one quart of sugar syrup fed, would amount to approximately the weight of the sugar. Years ago when we fed a considerable amount of thick sugar syrup, made of two parts granulated sugar to one part of water, in the fall for winter bee food, we figured that a ten-pound pail of thick sugar syrup contained about six pounds of sugar and this syrup, after it had been evaporated down to the consistency of honey, would be equal to approximately six pounds of honey.

* * *

Feeding Honey to Bees

Question: I have several jars of liquid honey I obtained when melting up some honey which sugared. Can this be safely fed back to the bees in the spring?—R. C. Burcham, Ill.

Answer: It will be possible to feed the honey you have to the bees next spring. In order to do this you should mix the honey with water, in the proportion of approximately 75 per cent honey and 25 per cent water. It will be necessary, of course, to heat the water to near boiling point, then stir in the honey which, during the spring, may become granulated. Feed in any regular bee feeder. You should make sure that the honey in question did not come from a colony infected with American foulbrood.

* * *

The Queen Bee's Sting

We received a question regarding barbs on the sting of a queen bee, which we used in the Asked and Answered Department in November, 1953 (see page 686). We were in error in saying that the queen bee's sting has no barbs. A few of the scientific men set us right on this question by referring us to the recognized authority R. E. Snodgrass, in his book, "Anatomy and Physiology of the Honeybee", page 123 where he says, "The sting of the queen is longer than that of the worker and is more solidly attached within the sting chamber. Its shaft is strongly curved beyond the bulb. The lancets have fewer and smaller barbs than those of the worker, but the poison glands are well developed and the poison sac is very large."

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceeding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA Honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 1.

FOR SALE—White Clover Honey, write for prices. Lloyd E. Allen, Tipton, Mich.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WANTED—Light amber clover, amber, goldenrod buckwheat. Advise what you have for immediate delivery. Roscoe F. Wixson, Dundee, New York.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 percent saving. Walter T. Kelley Co., Clarkson, Kentucky.

CASH PAID for white and amber extracted honey. Send samples and state quantity available. Prairie View Honey Company, 12303 - 12th St., Detroit 6, Mich.

WANTED—Carloads or less of honey and wax. Any grade. Send sample and best cash price. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

CASH FOR YOUR HONEY—Light extracted or comb. Regular trade send sample. 60-pound cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

BEESWAX OR HONEY WANTED in trade for supplies or cash. Hodgson Bee Supplies Ltd., 575 - 13th Ave., New Westminster, B. C., Canada.

WANTED — Honey all grades. Quote prices and send sample. Write Stoller Honey Farms, Latty, Ohio.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. A. I. Root Company of Syracuse, 1112-14 E. Erie Blvd., Syracuse, N. Y.

WANTED buckwheat honey. Eastern Food Products, 115 Division Ave., Brooklyn, N. Y.

WANTED — Chunk comb and extract honey. Victor Honey Farms, Rockwall, Texas.

HONEY WANTED; Large quantities. All grades. Cash price. Send samples. Finger Lakes Honey Co-op., Groton, N. Y.

WANTED—Light amber-clover and fall-flowers honey. Cloverdale Honey Co., Fredonia, N. Y.

CLOVER HONEY WANTED—Quote delivered price on truckload of new 60's. Ellsworth A. Meineke, Arlington Heights, Illinois.

WANTED for 1954: 1020 lbs. of the following clean, ripe UNMIXED honeys in 60's: orange, mesquite, catsclaw, huajillo, cotton, American holly, white Dutch clover, white sweet clover, tupelo, gallberry, red raspberry, vetch, black mangrove, sourwood, mountain sage, manzanita, blue vine, star thistle, Spanish needle, palmetto (saw or scrub or a mixture of both.) Send present samples if available and state price. Contracts let now. ALSO 1020 lbs. 1953 crop mountain sage, blue vine, Spanish needle, star thistle, manzanita. Send samples and price. VERA KENT HONEY PRODUCTS, 223 S. Chauncey, W. Lafayette, Indiana.

FOR SALE

2000 used honey cans 15c each. Come and get them. LOSE BROTHERS, INC., 206 E. Jefferson St., Louisville, Ky.

WRITE FOR CATALOG — Quality Bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE — New heart cypress 10-frame bottom boards. K.D., 10 or more $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample postpaid $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

ELECTRO Filling Machines, users and distributors. Write Stoller Honey Farms, Latty, Ohio.

BEE SUPPLIES—Tin packages; 10 sizes glass jars; paper shipping supplies; window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

The only comb foundation plant in the east. We sell foundation, work your wax render combs and cappngs. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

FOR SALE—Modern Honey Processing and Bottling business, stainless steel equipment, capacity 5 to 10 million pounds per year. Location ideal for source of supply, excellent market. Sales force, plant personnel, inventory, copyrights, good going business, 12,000 foot floor space. Low lease rental, excellent shipping including side track. Owner is retiring. Write Box No. 154, Care of Gleanings, Medina, Ohio.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

YELLOW ITALIAN BEES. Real producers. Health certificate. Satisfaction guaranteed. Queens, $1.00 Airmail. O. E. Brown, Route 1, Asheboro, N. C.

THREE-BANDED ITALIAN bees and queens of our regular strain. Also Dadant's new four way Hybrids for 1954. Alamance Bee Company, Graham, N. C., Phone 4703.

PACKAGE BEES—SUPPLIES, trade for extractor, typewriter, garden tractor. Write. Crenshaw County Apiaries, Rutledge, Ala.

CAUCASIAN Bees and Queens. Write for 1954 prices. Lewis & Tillery Bee Co., Greenville, Ala.

CARNIOLAN QUEENS mated to Caucasian Drones. Your order must be in 5 weeks in advance. Howard Weaver, Navasota, Texas.

ITALIANS—Packages, Queens. Martz, Rt. 2, Box 846, Vacaville, California.

CAUCASIAN QUEEN BREEDERS—Specializing in pure breeding stock raised in a truly northern, isolated location. Join the satisfied 1953 breeders by booking Hastings queens for 1954. Available from mid-July to mid-Sept. Select tested, $5.00; Breeders, $10.00. Satisfaction guaranteed. J. E. Hastings, Birch Hills, Sask. Canada.

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
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Oconomowoc, Wisconsin

Booking orders now. Over 30 years a shipper. Send for Free Circulars.
BLUE BONNET APIARIES
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Package Bees & Queens
Quality & Service
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Stop! Look! Order!
Your package bees and selected queens
Good quality Italians
Dependable service
JOE PENCIN
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Booking Orders for 1954
RENEE Brand **Queens**
SILVER HIVES APIARIES
Enterprise, Florida
Write for Prices

ITALIAN
Package Bees and Queens
Jackson Apiaries
Box 58 Funston, Ga.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Do You Have Idle Equipment?

We extend credit without charge to commercial beekeepers who use 100 or more packages. Our price in quantities of 100 or more, for a 2-lb. package with a young laying, Bambi brand queen is $3.25 and the 3-lb. package with a young laying, Bambi brand queen is $4.25. Prices are f.o.b. Our newly designed shipping package gives better ventilation and fewer bees die in transit. We also extend credit, without charge, on order of 100 or more Bambi brand queens at $1.00 each. If interested, please send three character references; the number of packages or extra queens wanted; the shipping date; and as soon as we have had the time to check your references, you will immediately be advised if we are in a position to fill your order. Ask your neighbor about our Bambi brand queens.

Southern Apiaries & Supplies Co.

Chatom 1, Alabama

QUALITY BRED ITALIAN QUEENS

March 10 to June 1 $1.00 each

June 1 to Nov. 1 .50 each

All queens shipped Air Mail and guaranteed to please.

Walter D. Leverette Apiaries

Fort Pierce, Box 364, Florida

PLANT'S

3-Banded Italians

2-lb. pkg. with qn. $3.50
3-lb. pkg. with qn. 4.50
Queens 1.10
Discount on large orders.
Add $1.00 per lb. for larger packages.

W. E. PLANT
Hattiesburg, Mississippi

SEEDS

HONEY PLANTS, trees, shrubs, perennials. Unusual varieties most desirable for planting and make honey. New 1954 catalog—actual photo illustrations. Send for your free copy today. Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS

Bargain in new or used honey cans or Root Supplies for cash or honey. Buckeye Honey Company, 3930 N. High St., Columbus 14, Ohio.

BOOKBINDING: Bind your "Gleanings" in rich brown cloth. $2.25 per volume. E. Bradford, Westminster, Colorado.

SECTION COMB HONEY production steps—$1.00. Comb Honey Production Gossary—50c. United Industries, Dept. L, Box 449, Madison 1, Wis.

HELP WANTED

WANTED — Young men interested in learning bee supply business. Openings in metal and printing departments. The A. I. Root Co., Medina, Ohio.

HELP WANTED — Two men for the coming season. Give references. Howard Weaver, Navasota, Texas.

WANTED: Reliable, experienced beemen. C. H. Schader, Sunnyside, Washington.

HELPER in queen rearing. Young man, single preferred, no bad habits. Learn queen rearing and beekeeping in south Florida. Albert Hann, LaBelle, Florida.

HELP WANTED; Experienced apiarist, careful truck driver. Excellent wages, year around work if you can qualify. M. E. Ballard, Roxbury, N. Y.

WANTED experienced beekeeper for 1954 season or permanent position. Apartment included. J. Farr, 4851 Paddock Road. Bond Hill, Cincinnati, Ohio

EXPERIENCED YOUNG MAN in extracted honey production. Give age, qualifications, salary expected. Season April-December. Board, room furnished. Lavern Depew, Auburn, N. Y.

POSITION WANTED

EXPERIENCED Man 26 desires year around work with bees. References given. Geo. Goldzung, Jr., 140 County Line Rd., Amityville, L. I., N. Y.

MAGAZINES

THE BEE WORLD international and scientific journal on bees and beekeeping, with apiculture abstracts. Monthly, including membership in the Bee Research Association, $3.00 per annum, including apicultural abstracts. Dr. Eva Crane, Director, 55 Newland Park, Hull, Yorks, Eng.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

ARCHIVE OF BEE SCIENCE (Archive fur Bienenkunde), oldest scientific, independent bee journal in the world. Select feature material gives lasting theoretical and practical knowledge. Sample copies available. Two large 1953 editions for the low price of DM 5.50. Biene-Verlag (Bee publishers), Lindau (B), Postscheck Karlsruhe 55811, Germany.

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P., India, or available through them. Subs. Rs7/ or 10 shillings or 2.25 dollars per annum. Single copy Rs ¼s. 1/9 or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $1.00, Hotel Cactus, San Angelo, Texas.

Write us about your **Queen** and **Package** Bees, also our prices.

Mitchell's Apiaries
Bunkie, La.

HONEY WANTED
Bryant & Sawyer
2425 Hunter St., Los Angeles 21

SHE'S A HONEY OF A BEEKEEPER

(Continued from page 11)

Twice in her beekeeping career Carol has been stung, but the idea that the bees died after stinging her seemed to hurt more than the actual stings.

At Henry Clay High School in Ashland, where she is in the eighth grade, Carol enjoys most of all her course in general science. Latin and algebra are all right, she says, but science is more down her line. By the time school started in September, she had a large collection of butterflies and moths to display at school, the result of a summer hobby. Her mother explains that Carol has had a whole rash of hobbies from time to time, but beekeeping apparently is here to stay.

Carol's father thinks that beekeeping is a good hobby for a child "under the proper guidance." He stresses the importance of working with a local beekeeper to learn the right way to do things.

"Beekeeping teaches a child the importance of co-operation—that's what a bee hive is."

This is an invitation to visit with us at any time. If you are going SOUTH on

U. S. 41 take State Rt. 33 just south of Cordele, Ga. U. S. 19 take State Rt. 133 at Albany. U. S. 27 take State Rt. 55 at Cusseta, 20 miles south of Columbus, Ga. At Dawson, State Rt. 50 to Albany, then 133 to Moultrie. We are on State Rt. 33, two miles north of the courthouse. Other routes easy to establish.

We are anxious to have you come by and if you will advise us, we can reserve overnight accommodations for you.

Regardless, remember we have for spring delivery, Package Bees with either Island Hybrid or Regular Stock Queens.

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High Quality Italian Queens & Package Bees for 1954
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CHOICE PACKAGES and Queens
Prompt, businesslike service
Order now—no deposit required
The A. H. HALE CO.
Hapeville Georgia

YORK'S

PACKAGE BEES AND QUEENS FOR 1954

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York Bee Co.

Jesup, Georgia

DADANT'S STARLINE HYBRIDS

Reg. U. S. Pat. Off.

(The Universal Apiaries)

JUST NEWS

(Continued from page 53)

Afternoon Session

1:30 p.m. "Labor Saving Management for the Hobbyist Beekeeper", G. H. Cale, Editor, American Bee Journal, Hamilton, Illinois.

Election of Officers.

Informal three-way discussion on "How we can help the hobbist recognize bee disease." Fred Coddington, Basking Ridge, N. J., Paul L. Holcombe, Lambertville, N. J., Milton H. Strickler, Annandale, N. J.

Report of Experiment Station Work. Robert S. Filmer, Associate Research Specialist in Entomology, Experiment Station, New Brunswick, N. J.

Report on Beekeeping Inspection Work Jack Matthenius, Deputy Bee Inspector.

* * *

A Correction

GLEANINGS wishes to amend a statement made in our report on the Southern Beekeepers' meeting, as reported in the December issue. Our statement concerning the level of honey support should be amended to read: "The present law is that of the Agricultural Act of 1949. For honey, the Act simply says that the price of honey shall be supported through loans, purchases, or other operations at a level not in excess of 90 per centum or less than 60 per centum of the parity price."

Thus, the Act does not limit the length of time for which this price support provision is applicable, and it will continue until the Congress votes otherwise.

* * *

NOTICE: The **Macon County (Illinois) Beekeepers' Association** have changed their name to the **Illinois Central Beekeepers' Association** and have broadened their membership area to include four more counties. Future meeting dates and places are: Jan. 21, Farm Bureau Office, Shelbyville; Feb. 18, 404 S. Water St., Decatur; March 25, Farm Bureau Office, Shelbyville. These meetings are scheduled for 7:30 p.m.

* * *

Thanks for the Honey—This happened in Medina, Ohio, during National Honey Week. Mr. H. H. Root, Associate Editor of Gleanings, attended a dinner where the waitress served honey along with the pat of butter. Gallant H. H. Root was equal to the occasion. "Thanks for the honey, Honey!" he said. The waitress almost dropped the bowl of soup over Mr. Root's flashy day-glo tie.

* * *

Our Cover Picture

Our cover girl is Joan Townsend, daughter of Dr. G. F. Townsend, Professor of Apiculture at Ontario Agricultural College.

CAUCASIAN

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and

QUEENS

Howard Weaver

Navasota, Texas

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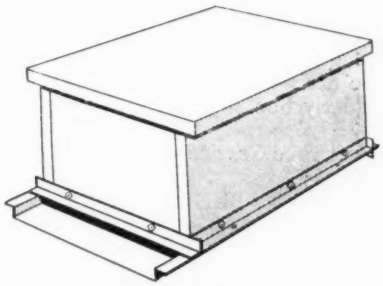

Feeding Made Easy

(Continued from page 29)

sodium sulfathiazole at the rate of one-half gram tablet per gallon of feed or one-third level teaspoon of powdered sodium sulfathiazole per gallon of feed. Dissolve the drug (crush the tablet first) in warm water and then add to the feed slowly and by continuous stirring. Be sure the drug is thoroughly mixed into the feed. Do not overfeed colonies in the spring so that dark honey and the sulfathiazole will contaminate your white honey crop.

Mixtures for Feeding of Bees

SPRING:

Sugar Syrup—Two pounds of sugar to two pounds of water.

Honey and Sugar Mixed—100 pounds sugar, 400 pounds honey, 300 pounds water.

Honey Only—100 pounds honey, 50 pounds of water.

STIMULATIVE FEEDING (When plenty of honey is present).

Sugar Syrup—One pound sugar to two pounds water.

Honey and Sugar Mixed—100 pounds sugar, 400 pounds honey, 600 pounds water.

Honey Only—100 pounds honey, 100 pounds water.

FALL:

Sugar Syrup—The proper mix for sugar and water for winter feeding is two pounds of sugar to one pound of water.

Honey and Sugar Mixed—Since honey contains on an average of 17 per cent water, the proper mix for winter feeding would be 100 pounds of sugar, 400 pounds of honey, 150 pounds of water. The addition of the sugar to the honey for feeding tends to prevent crystallization of the feed.

Honey Only—To mix honey and water for winter feeding, add 25 pounds of water to 100 pounds of honey. Some honeys, especially alfalfa, goldenrod, and aster, tend to granulate very fast. If any of these honeys are fed back for winter, sugar syrup should be mixed with them to prevent granulation.

Beekeepers' Income Tax Return

Question: Can you give me any helpful information in preparing my income tax covering such matters as depreciation on equipment and bookkeeping methods.—C. F. Doud, Iowa.

Answer: We do not have too much information on this subject but suggest you contact your local Income Tax Advisor. No doubt, some of our readers also will be glad to give you ideas from their experience.

TOO LATE TO CLASSIFY

FOR SALE — 500 10-frame extracting supers, good combs. Joe C. Weaver, Everton, Mo.

FOR SALE — Senior size galvanized Brand capping melter. New, never used. Albert Gage, Williamson, New York.

FOR SALE—50 or 100 colonies bees in fine condition, ten and eleven frame hives. Dr. William C. Wilson, St. Charles, Mo.

AMBER extracted honey, 60 pounds $9.50. L. E. Smith, Hollow Rock, Tenn.

WANTED—White clover and amber extracted honey, take all you have. State amount and price in first letter. We pay cash. Also for sale, one 1-inch stainless steel pipe coil flash heater, never used, $100.00; two 75-gallon honey tanks and stands, $20.00 each. Honeymoon Products Company 39 E. Henry St., River Rouge 18, Michigan.

Be Prepared Early for 1954.
New Improved 4-Way Dadant Starline Hybrid Queens—
and our OWN QUALITY 3-Banded Italian Bees and Queens.
Packages will be supplied with either one or both of these TOP strains of queens, as desired.
Our Price Lists will be ready January 1st.
We urge early bookings of all orders and especially early bookings for MARCH queens.
Our Special Free Service of Clipping and Marking queens on request, will again be available.

Reg. U. S. Pat. Off.

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Make LITTLE'S Queens and Package Bees
a "Must" for you in '54.
Order NOW for Spring Delivery
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Box 4166, Labelle, Florida

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and Queens

LIVE AND LEARN

(Continued from page 31)

any real contribution to the prosperity of the colony, it does boost morale, both yours and the bees. It does you good to see the way the bees pile into the blossoms. I have seen four or five in a single blossom at one time, each scrabbling for all she was worth to get as much pollen as she could, and not paying the least bit of attention to the others.

So, with our newly found ambition, we sort out the extracting combs, scrape the goo off the frames, melt down the poor combs, and do all the little jobs that are such a nuisance when the season is really under way. If we feel like taking a nap while nobody is looking, that's all right, too. We dope out all the new stunts that we will try, and then go right back to the same old routine that we always used, with a couple of minor exceptions. Anyway, it's fun to dope out new methods, and once in a while we find a shortcut or a labor saver that is worth putting into our regular management.

"Gulf Breeze" Packages & Queens

Write us TODAY for prices on our Italian queens and packages. No other bee business is better equipped and with our experienced personnel, you are assured of QUALITY and good SERVICE. Let us book your order while select dates are open.

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1 -24	$1.25	$3.75	$4.75
25 -99	1.15	3.50	4.50
100 -999	1.05	3.25	4.25
1000-up	1.00	For truck loading, we invite correspondence or better still, your personal visit.	

All above prices are on our regular Italian stock. For queens of Dadant "Starline" 4-way Hybrids, add 25c to each item.

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